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Limestones and Dolomites of Nova Scotia: Antigonish, Guysborough, Pictou and Cumberland Counties

by *D. A. Murray*

**Nova Scotia Department of Natural Resources
Mineral Resources Branch
Bulletin No. 2, Part II, 1975**

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PROVINCE OF NOVA SCOTIA

DEPARTMENT OF MINES

BULLETIN NO. 2

LIMESTONE AND DOLOMITES

OF NOVA SCOTIA

PART II

ANTIGONISH, GUYSBOROUGH, PICTOU AND CUMBERLAND
COUNTIES

By

D. A. MURRAY

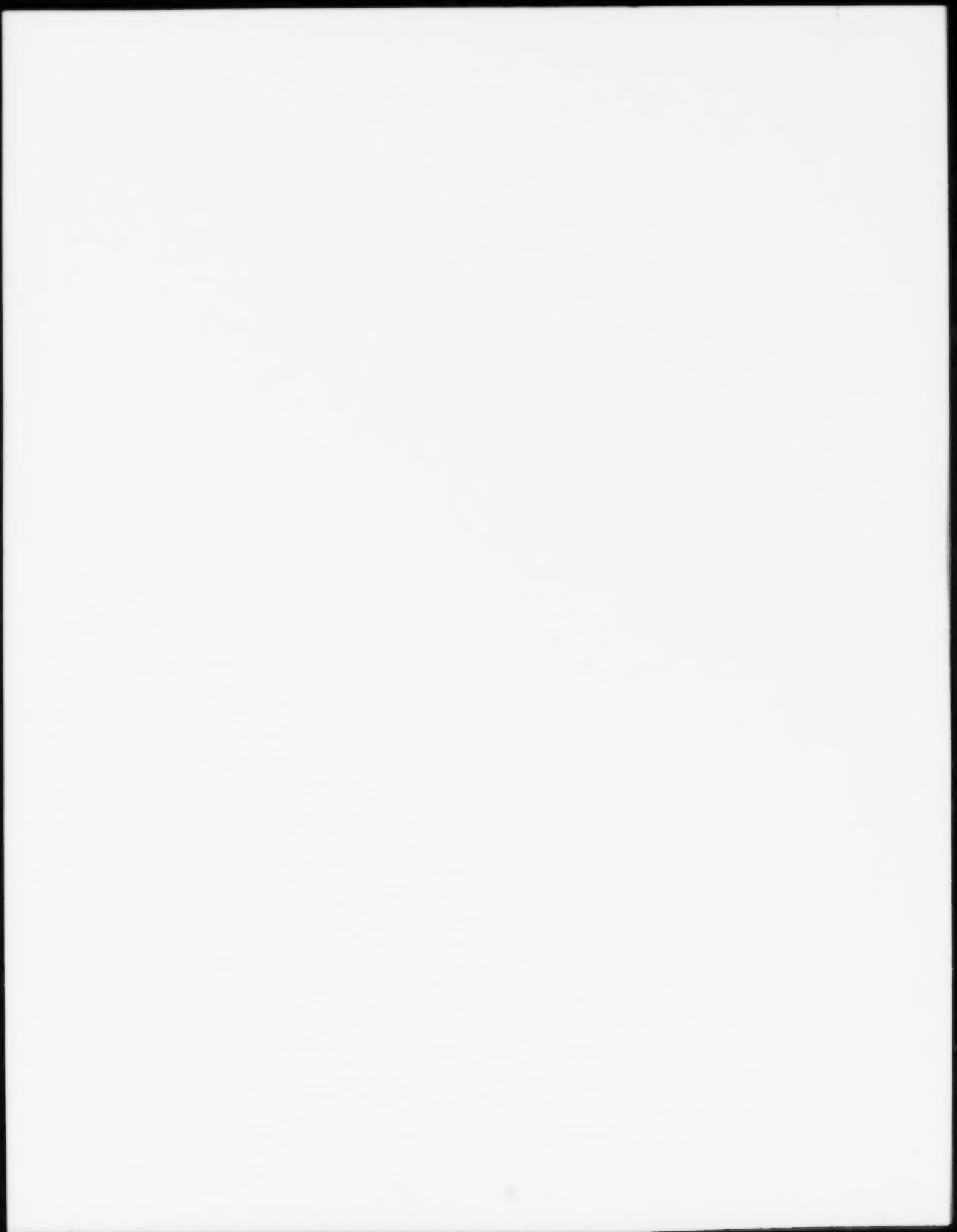
HALIFAX, NOVA SCOTIA

1975

HON. LEONARD L. PACE, MINISTER

John C. Smith, Deputy Minister

F. S. Shea, Director of
Mineral Resources and
Geological Services



P R E F A C E

This report deals with limestones and dolomites of Nova Scotia and constitutes part of a continuing survey to provide new information on industrial mineral occurrences in Nova Scotia.

Outlined herein is a systematic field survey of limestones and dolomites found in Guysborough, Antigonish, Pictou and Cumberland Counties. Most of the significant occurrences are described and locations recorded. Particular attention is given to chemical analyses of the rock with a view to future potential use in the metallurgical, agricultural and cement making industries.

The report constitutes the second part of a three-part series on limestone and dolomite occurrences of Nova Scotia, and will be followed by a similar report on Colchester, Halifax, Hants and Lunenburg Counties.

F. S. Shea,
Director
Mineral Resources

Halifax, Nova Scotia
June 1974

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CHAPTER I

INTRODUCTION

Introductory Statement

This report is intended to direct attention to areas in Antigonish, Pictou, Guysborough and Cumberland Counties where commercial grades of limestone and dolomite occur, and to indicate briefly, in part, the potential that still exists for outlining additional economic deposits. Diamond drilling will be necessary in most locations for further investigation.

This coverage of the four counties involves both a surface examination of known and previously unknown limestone and dolomite occurrences and preliminary diamond drilling programs. This work constitutes part of a full inventory of occurrences in areas underlain by these limestones and dolomites throughout mainland Nova Scotia, to be published at a later date.

The limestones described in this report follow the format proposed by Bell (1929). He introduced five main subzones, A, B, C, D, and E, with Subzone A being the base of the Windsor Group of rocks and the E Subzone being the youngest limestone bed in the succession. The subzones are based on the fossil content of the individual limestone beds. Stacy (1953) later modified Bell's work and divided the subzones even further, i. e., A₁, A₂, B₁, B₂, B₃, etc. These were divided on the basis of fossil content or on some particular characteristic which is restricted essentially to a specific limestone bed.

Some of these later divisions by Stacy (1953) cannot be considered strict time boundaries, but are more likely due to a change in environmental conditions within an area. These divisions, however, are useful for describing different limestone beds in this report.

Purpose of Survey

The primary purpose of this inventory of limestones and dolomites is to produce an assessment of Antigonish, Pictou, Guysborough and Cumberland Counties comparable to that which has been completed on Cape Breton Island (Bulletin No. 2, 1969). Pertinent data covering location, extent, structure and characteristics are recorded herein. To these data have been added results of the analyses of all samples taken.

A preliminary drilling program to supplement the surface inventory was carried out in selected areas, guided primarily by economic considerations.

Sampling Procedure

Analyses of a total of 89 surface samples taken from limestone and dolomite occurrences constitute part of this

report and are included in the section dealing with individual outcrops and occurrences.

Some samples were omitted from this report because of their high silica content. Deletion of these causes a break in the sampling sequence in some locations.

All samples collected and analyzed are coded; first by letters indicating the area from which the sample was taken, followed by two numbers. The first number denotes the occurrence and the second number denotes the number of samples taken from that occurrence. As an example, consider sample SAH-1-2. The code indicates that this sample was taken in the Southside Antigonish Harbour area, on the first occurrence examined and second sample taken. All locations of samples taken are recorded by longitude and latitude in Appendix B with reference to the National Topographic Series, scale 1:50 000.

Acknowledgements

During the field season of 1966 and 1967, D. Muggah and N. Brewster ably discharged their duties as field assistants.

The writer wishes to express his appreciation for the valuable assistance given by analysts of the Nova Scotia Agricultural College, Truro, and analysts of the Nova Scotia Department of Mines who make use of laboratory facilities in the Chemical Engineering Department of the Nova Scotia Technical College.

Scope of Investigation

The investigation of limestone and dolomite occurrences in Antigonish, Pictou, Guysborough and Cumberland Counties began during the latter part of 1966 and was completed during 1968. Field work was directed primarily towards surface inventory of known and previously unknown occurrences. Samples taken from these various occurrences or outcrops were analyzed, each showing described and the geology studied. Where good quality stone was found with possible tonnages of significance, a preliminary drilling program consisting of two or more drill holes was undertaken. Drilling has been done only in Antigonish and Pictou Counties. All limestone and dolomite cores from such holes were analyzed and then stored at the Department of Mines building in Stellarton.

Preliminary data and regional geological references were obtained from the old and new series geological maps and reports published by the Geological Survey of Canada.

Field staff involved in this survey consisted of one two-man party which carried out all preliminary field work. Personnel making up this field crew were Department of Mines staff and geology students employed from universities in Nova Scotia.

CHAPTER II

ANTIGONISH COUNTY

General Geology

The Upper Mississippian Windsor Group of marine sediments in Antigonish County, as in the type area near Windsor, Nova Scotia, is made up of gypsum, anhydrite, salt, limestone, fossiliferous limestone, magnesium limestone and a variety of siltstones, mudstones, sandstones and calcareous shales. The western boundary of these Windsor beds is in fault contact either with sandstones of the underlying Horton Group of sediments of continental origin or with the Browns Mountain metamorphic group, while the southeast boundary is in conformable contact with Horton sandstones and siltstones. In the Antigonish area the Windsor Group is in fault contact with the younger Canso Group of sediments, Upper Mississippian in age.

The Southside Antigonish Harbour area is considered to be underlain by the most significant limestone occurrences in Antigonish County. This area lies within a central basin in which the limestone beds appear to have a greater thickness than is apparent along its outer margins. The limestones found in this central basin are mainly fossiliferous and are rimming or sitting on a granodiorite basement which outcrops in several locations from Williams Point to Captains Pond. These limestones were not influenced to any great extent by detrital material originating from the surrounding elevated areas which are composed of metamorphic and granitic rock types. The areas investigated appeared to have been little affected by the process of dolomitization. However, subsequent preliminary drilling program and analyses showed significant increases in dolomitic stone at depth. Limestone belonging to the E Subzone (Bell) characteristically forms mounds, probably indicative of a reef structure origin.

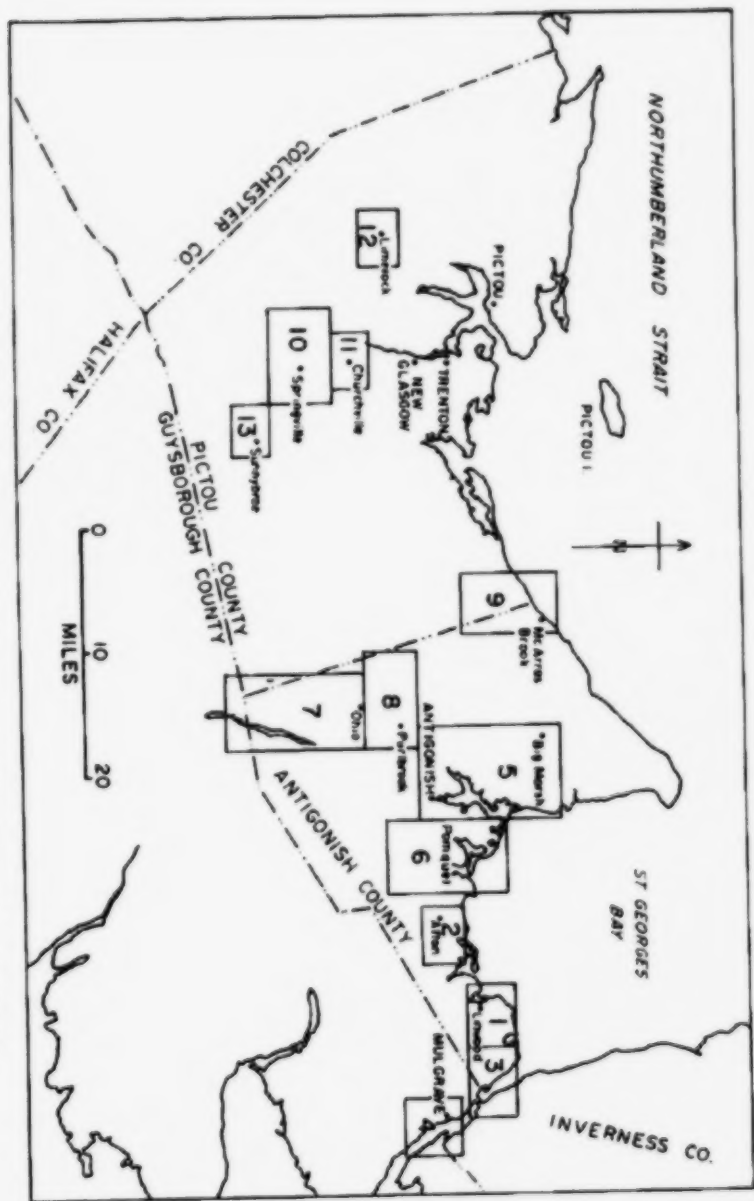
AFTON AREA

AFTON (1-1)

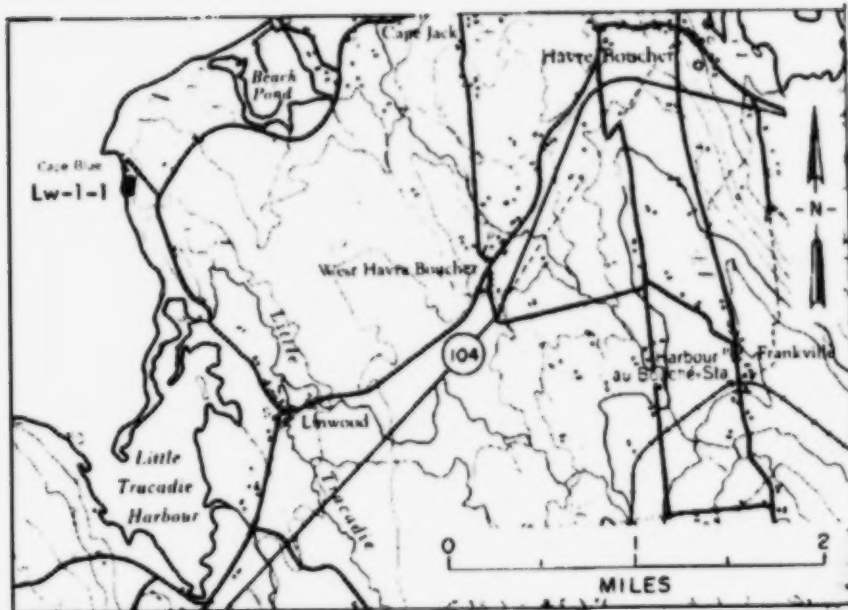
This occurrence is located at Afton, Antigonish County, 0.95 miles south of the Trans-Canada Highway and 1.7 miles south of Route 4 at Bayfield Road. Limestone is found outcropping 790 feet southwest of the road which runs from Bayfield Road to Upper Afton. It is found in a field behind the farmhouse of Isadore Landry. (See Figure 2, page 5).

Description

The rock exposed is a grey, hard, dense, medium-grained, laminated, Windsor limestone belonging to the A Subzone. Bedding is well developed and the weathered surface is light grey and rough. There are many calcite stringers throughout the outcrop which has been folded extensively. The beds strike N 65° E and dip 69° NW.

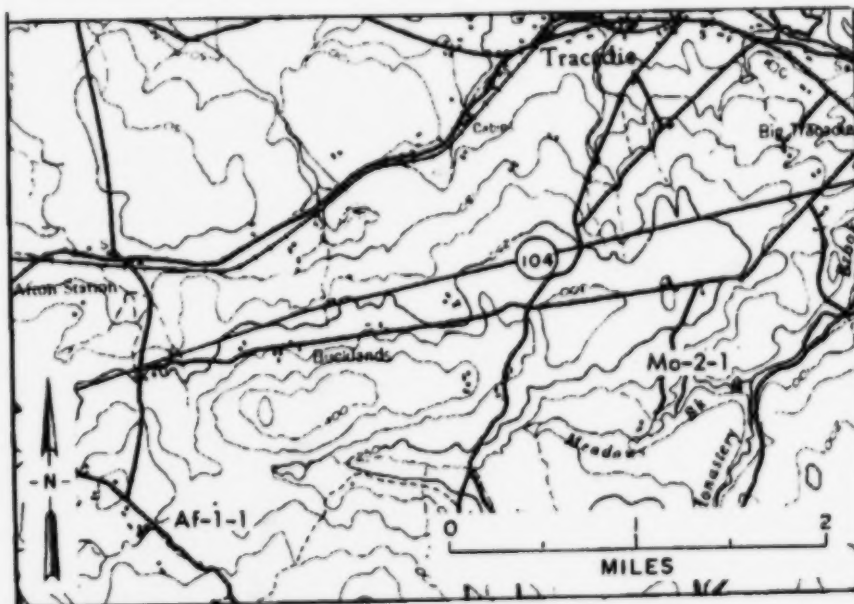


Key Map 1. Location of Figures 1-13 inclusive, in Guysborough, Antigonish and Pictou Counties.



Ref. Map 11-F-12-E

Figure 1



Ref. Map 11-F-12-E

Figure 2

The limestone forms a ridge 330 feet long which reaches a height of 30 feet at its highest point and which trends parallel to the strike of the bedding. It is 100 feet to 150 feet wide at its base. There are two small quarries located at the northeast and southwest extremities of this ridge. The limestone is 10 to 15 feet thick with little or no overburden. This occurrence is considered too small to be of economic significance.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Af-1-1	41.90	2.40	1.15	53.40	0.24

ANTIGONISH AREA

ANTIGONISH (1-1)

This occurrence is located on the north end of the Town of Antigonish, 600 feet north of the Antigonish Dairy. Limestone outcrops in a 25 foot embankment on the west side of a road running between Antigonish and Lower North Grant. (See Figure 5, page 15).

Description

It is a dark grey, hard, compact, fine-grained, siliceous, Windsor limestone belonging to the E Subzone. Bedding is thin, well developed and smooth and is striking N 60° E and dipping 56° NW.

The limestone is approximately 20 to 25 feet thick and is overlain by a grey, poorly compacted shale. This shale contains shells and a few crinoid stems. The occurrence is underlain by red and grey siltstone.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
An-1-1	36.30	14.70	3.41	44.50	1.38

ANTIGONISH (2-1)

This occurrence of limestone is located 1.4 miles due north of the railway crossing at the north end of Antigonish on the road to Lower North Grant. The limestone can be found outcropping on both sides of a small brook which runs south along the east side of the road and empties into the Rights River. The road is 50 feet above the brook at this point. (See Figure 5, page 15).



Plate 1. E Subzone limestone found along the Lower North Grant road at the north end of the town of Antigonish, Antigonish County. (An-1-1)



Plate 2. Laminated, A Subzone limestone underlain by conglomerate. Located 1 mile north of the town of Antigonish along the east side of the Lower North Grant road, Antigonish County. (An-2-1)

Description

It is a grey, hard, dense, laminated, medium-grained, Windsor limestone belonging to the A Subzone. Bedding is well developed and thinly laminated, striking N 32° E and dipping 37° SE. The weathered surface is grey and smooth. A large amount of detrital material is evident.

The limestone is between 15 and 20 feet thick. On the east side of the brook there appears to be very little overburden. On the west side of the brook the limestone dips beneath the road. This limestone is underlain by the Rights River Conglomerate.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
An-2-1	36.50	13.00	4.20	40.20	5.57

ANTIGONISH HARBOUR AREA

ANTIGONISH HARBOUR (1-1)

This occurrence is located along the west shore of St. Georges Bay between Ogden Pond and McIsaac Point at Antigonish Harbour. The limestone occurs in a ridge which is approximately 75 feet above sea level, paralleling the shore. It outcrops along the side of the road and at the edge of the water. (See Figure 5, page 15).

Description

The limestone is light reddish grey, very hard, compact, fine-grained and belongs to the Windsor Group. Its weathered surface is rough and light brown in color. Bedding is well developed, striking N 18° E and dipping 31° SE. The upper layer of this occurrence consists of a limestone conglomerate (Plate 4) but towards the base the material becomes more laminated (Plate 3). This is an A Subzone limestone. The zone is approximately 25 feet thick with very little overburden and extends along the shore for approximately a mile.

The surrounding area is accessible but the limestone is considered to be of very little economic value.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
AH-1-1	40.50	5.78	1.32	51.60	0.88



Plate 3. Antigonish Harbour. An A Subzone limestone found north of Crystal Cliffs along the west shore of George Bay, Antigonish County. (AH-1-1)



Plate 4. Limestone breccia overlying the A Subzone limestone shown above, Antigonish County. (AH-1-1)

ANTIGONISH HARBOUR (2-1)

This occurrence is found at Antigonish Harbour which is located 8 miles north of the Town of Antigonish. Limestone is found outcropping on both sides of the road running between Antigonish and Cape George, in the vicinity north of the intersection of the Mahoney Beach road. Outcrops are mainly found in an open field on the east side of the road, in what appears to have been a small quarry. (See Figure 5, PAGE 15).

Description

It is a light brown, hard, slightly porous, medium-grained, massive, Windsor limestone. Bedding is very poorly developed and the weathered surface is very rough and yellowish brown in color. There is a great deal of secondary calcite along the fractures as well as numerous solution cavities on the weathered surface.

No strike or dip could be measured due to the small areal extent of the outcrop. The limestone however, appears to be trending N 34° E.

There is very little overburden, but its total thickness cannot be measured. The limestone is associated with and possibly overlain by gypsum.

The occurrence does not appear to have either the quality or the quantity to be of any economic value.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
AH-2-1	38.40	8.50	3.98	48.10	0.49

ASHDALE AREA

ASHDALE (1-1)

This occurrence is located along the Sherbrooke-Antigonish highway (Route 7). Limestone outcrops on both sides of the road in a 15 foot high mound trending N 44° E, almost at right angles to the highway. Outcrops were also noted in a small brook which runs parallel to the road. This location is 1.9 miles southeast of Ashdale, and 1.6 miles north of the Glen Road turn-off at Lochaber. There are swamps on either side of the mound. (See Figure 7, page 30).

Description

It is a dark grey to brown, hard, dense, slightly massive, bituminous, dolomitic, Windsor limestone. Bedding is not well developed, but is striking N 44E E and dipping 36E SE. The weathered surface is brown and rough.

The limestone would appear to be approximately 20 to 25 feet thick (the thickness of the mound at the base). There is no overburden. It outcrops along the sides and along the top of the mound. The surrounding area is wooded mostly with spruce and is swampy, but is readily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Ad-1-1	39.00	10.50	7.28	30.71	13.62

ASHDALE (2-1)

This occurrence is located along the east side of the Glen Road which runs between Purl Brook and Lochaber. Limestone outcrops along the side of the road, 0.6 miles south of Glen Road and 80 feet south of where the road crosses the brook. It outcrops in a 20 foot high embankment. (See Figure 8, page 35).

Description

It is a dark grey, hard, dense, highly argillaceous, thinly bedded, Windsor limestone. Bedding is well developed, striking N 85° W and dipping 48° NE. A light brown weathered surface which contains a few calcite stringers is characteristic.

The limestone is approximately 15 feet thick with very little overburden. The surrounding area is heavily wooded.

This deposit would not appear to be of any economic value.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Ad-2-1	31.29	17.60	12.65	28.70	6.32

AULD COVE AREA

AULD COVE (1-1)

This occurrence is located on the mainland shore of the Strait of Canso, northwest of Auld Cove between the lighthouse at Bellefontaine and McDonald Brook. Limestone is found on a point of land along the shore. (See Figure 3, page 13).

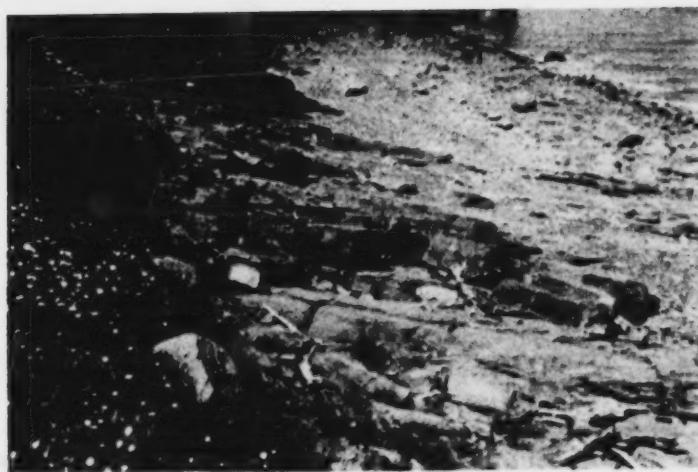
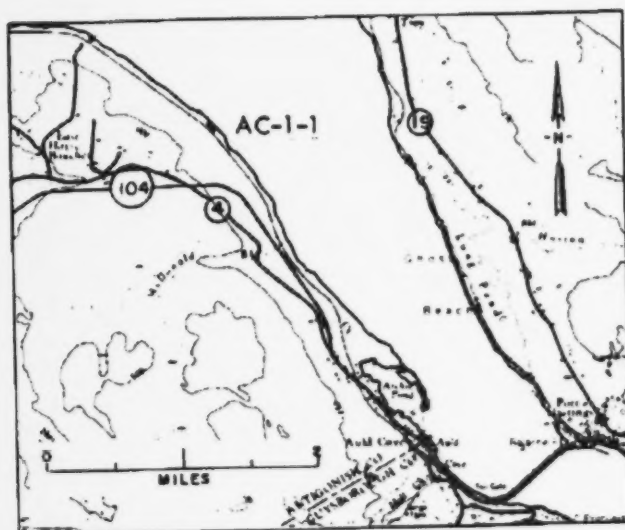


Plate 5. Auld Cove. An A Subzone limestone along the shore of the Strait of Canso, Antigonish County. (AC-1-1)

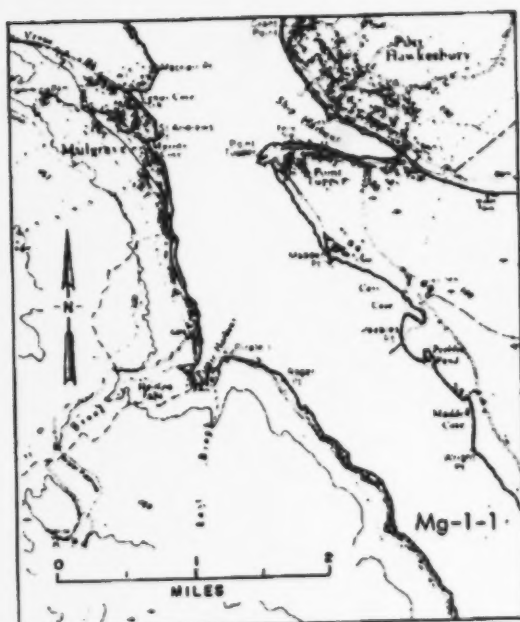


Plate 6. Close-up of laminated A Subzone limestone of above. Antigonish County. (AC-1-1)



Ref. Map 11-F-11-W

Figure 3



Ref Map 11-F-11-W

Figure 4

Description

This occurrence is a dark grey, hard, compact, fine-grained (lithographic in sections), laminated (Plate 6), siliceous, Windsor limestone. The bedding is thin and well developed (Plate 5). It is striking N 78° E and is dipping 25° NW. The weathered surface is smooth and grey. There are numerous clusters of calcite crystals and large and small calcite stringers trending N 59° E and 53° W, thus cutting each other almost at right angles. A large number of these calcite veins have a coating of yellowish brown limonite. The showing is approximately 20 to 25 feet thick with about 10 feet of overburden away from the shore.

Limestone has been faulted up against a light grey, calcareous quartzite of the Horton Group. The fault is striking N 68° W and dipping steeply towards the southwest.

The limestone does not appear to be of any economic value.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
AC-1-1	37.60	10.50	2.20	47.30	0.72

BIG MARSH AREA

BIG MARSH (1-1)

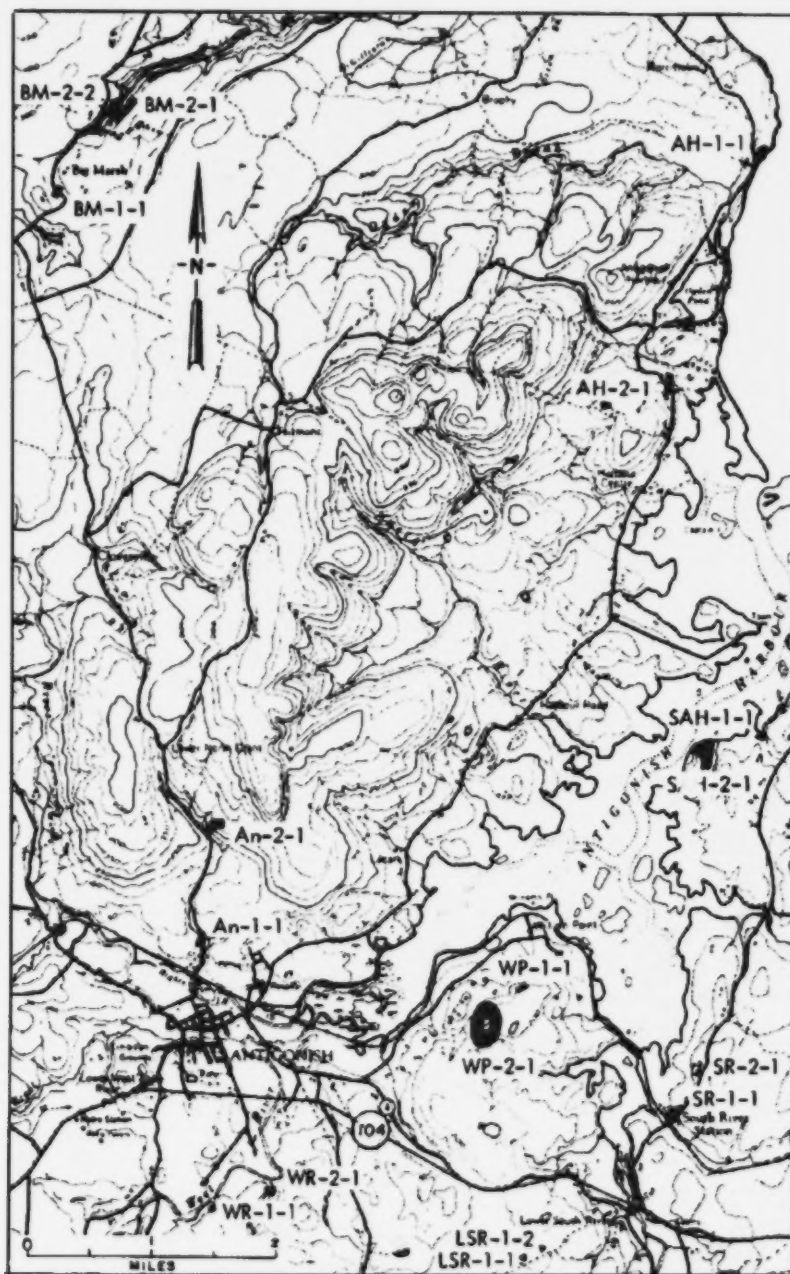
This occurrence is located along both sides of the secondary road running between Big Marsh and Georgeville, approximately 300 yards southwest of the Post Office at Big Marsh. Limestone is found outcropping in the ditch on both sides of the road. (See Figure 5, page 15).

Description

It is a brownish grey, hard, dense, medium-grained, laminated, Windsor limestone. This may be an A Subzone bed which has undergone compaction. Bedding has been distorted, but in general it is striking N 75° E and dipping 25° NW. The weathered surface is very light brownish grey in colour and rough.

The limestone appears to be at least 10 to 15 feet thick but is covered by a large amount of overburden.

The surrounding area is open farmland.



Ref Maps 11-E-9-E, 11-F-12-W

Figure 5

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
BM-1-1	40.50	6.18	1.30	50.40	0.72

BIG MARSH (2-1) (2-2)

This occurrence is located on the property of John McLellan of Big Marsh. This property is on the east side of the road running between Big Marsh and Georgeville approximately 8 miles north of the Town of Antigonish. Limestone outcrops in mounds or ridges which have a trend in a northeasterly direction on either side of the Wallace Brook, immediately north of where the road at Big Marsh crosses Wallace Brook. (See Figure 5, page 15).

Description

Sample BM-2-1 was taken on the east side of the brook. At this point the limestone varies from a reddish brown, thinly bedded, hard, medium-grained material on top to a greenish grey, very hard, compact, fine-grained (almost lithographic), Windsor limestone beneath. Bedding is well developed, striking N 20E E and dipping gently towards the southeast. In the upper horizon, the weathered surface has a red and yellow iron staining. In the lower section, the weathered surface is light grey and smooth. This limestone also contains a section exhibiting round, nodular oncolites (Plate 9).

The limestone can be traced for approximately 1/4; mile along the ridges and would appear to be at least 30 feet thick with very little overburden.

Sample BM-2-2 was taken from an A Subzone limestone located on the west side of Wallace Brook. This limestone is overlain by a limestone breccia (Plate 8). Here the material is a thinly laminated, grey, hard, fine-grained, Windsor limestone which strikes N 25E E and dips from 43E to 63E SE. The overlying limestone breccia contains blocks of the underlying laminated A limestone. The occurrence parallels showing BM-2-1 for a distance of 1/4; mile, but does not appear to be greater than 15 feet thick and is covered by very little overburden.

This limestone is underlain by the Rights River Conglomerate.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
BM-2-1	39.10	11.91	1.39	46.41	0.81
BM-2-2	39.72	4.97	1.95	51.02	0.61



Plate 7. Big Marsh, Antigonish County. Laminated,
A Subzone limestone. (BM-2-2)

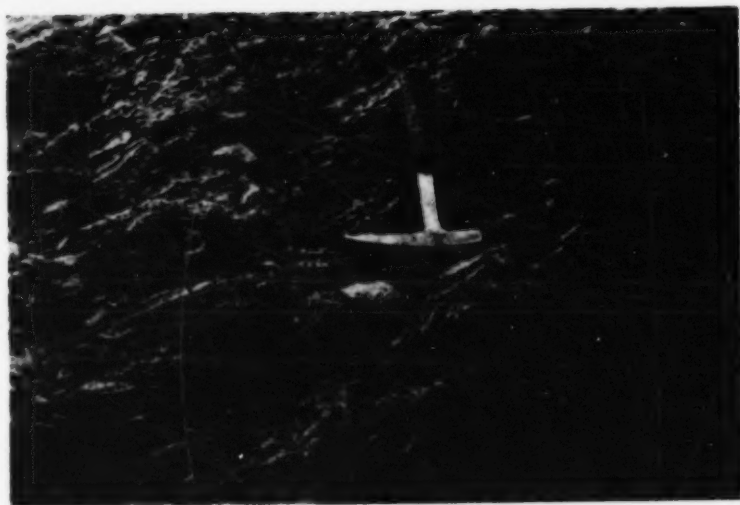


Plate 8. Big Marsh, Antigonish County. Limestone breccia
overlying the laminated limestone of above, with
large fragments of underlying A limestone of above.
(BM-2-2)

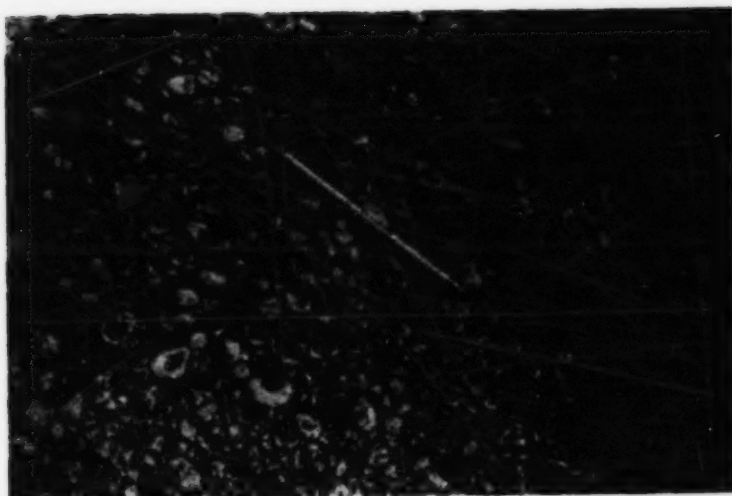


Plate 9. Oncolites found in A Subzone limestone at Big Marsh, Antigonish County. (BM-2-1)

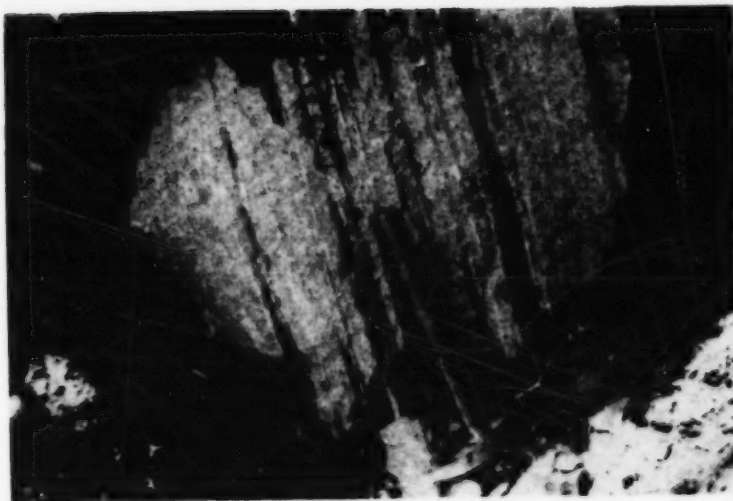


Plate 10. College Grant, Antigonish County. Laminated, siliceous limestone of Silurian age. Similar in appearance to the A Subzone limestones of the Windsor Group. (CG-1-1)

COLLEGE GRANT AREA

COLLEGE GRANT (1-1)

This occurrence of limestone is located approximately one mile east of College Grant in the southwest corner of Antigonish County. Limestone can be found outcropping in a road running north from the College Grant - South Lochaber road. It also outcrops along a farm lane and in a small pit west of the road. The outcrop on the road is 0.7 miles north of the College Grant-Lochaber road. (See Figure 7, page 30).

Description

It is a grey, very hard, highly siliceous, dense, fine-grained, laminated, Silurian (Benson, 1963) limestone. Bedding is well developed, striking N 59° E and dipping 56E SE and the weathered surface is grey and smooth. This limestone is very similar in appearance to the A Subzone limestones of the Windsor Group (Plate 10).

The limestone is 10 feet thick and is underlain by a green quartzite of probably Silurian age (Arisaig Group) containing pyrite cubes. It is overlain by a green gabbroic intrusive considered to be post Carboniferous in age. There is very little overburden. In 1952, a drill hole was put down just east of this location and cut 437 feet of grey limestone. Subsequent drilling in this area for base metals also cut considerable thicknesses of limestone.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
CG-1-1	30.60	22.95	5.58	30.60	1.27

JAMES RIVER AREA

JAMES RIVER (1-1)

This occurrence is located approximately two miles south of James River Station in the western part of Antigonish County, near the Pictou County line. Limestone outcrops on the west side of the Beaver River, 0.3 miles southeast of Cameron Lake. The occurrence is 1,800 feet downstream from where the James River-Keppoch road crosses the river. It outcrops on the west bank of the river and extends away from the river at right angles. (See Figure 8, PAGE 35).

Description

This occurrence varies upwards from a grey, hard, dense, laminated, Windsor limestone of the A Subzone in the bottom 10 feet of the section, to a red, calcareous conglomerate which contains small fragments of the underlying limestone. This conglomerate is approximately 6 feet thick and is, in turn, overlain by 10 feet of a laminated, grey, hard, dense limestone which is overlain by a brown, hard, dense, massive limestone approximately 15 feet thick. The weathered surface in the laminated limestone is light grey and smooth and exhibits calcite veins. The massive limestone has a brown, rough, weathered surface. It is striking N 62° W and dipping 68° NE.

The entire section is approximately 40 feet thick with very little overburden. The surrounding area is heavily wooded.

The following analysis is from a 40 foot channel sample.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
JR-1-1	37.80	10.01	2.86	46.90	1.60

JAMES RIVER (2-1)

This occurrence is located along the northwest side of Route 4, approximately one mile northeast of James River Station. Limestone is found 900 feet up a small brook which crosses Route 4, 0.5 miles southwest of where the Canadian National Railway crosses Route 4. It outcrops in the small brook and within a small mound which trends N 52° E away from this brook. (See Figure 8, page 35).

Description

The exposure is of a grey, hard, dense, laminated, Windsor limestone belonging to the A Subzone. Bedding is well developed, striking N 52° E and dipping 16° SE. The weathered surface is light grey and exhibits many calcite veins.

The thickness of this limestone could not be determined. It is covered by very little overburden. The limestone is underlain by a conglomerate, probably the Rights River Conglomerate, which is considered to mark the base of the Windsor Group in this area. The Horton-Windsor contact runs northeast, north of Brierly Brook and Antigonish. This limestone can be found along the flank of a hill in this area.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
JR-2-1	37.10	12.00	3.99	44.70	1.70

LINWOOD AREA

LINWOOD (1-1)

This occurrence is located along the eastern shore of St. Georges Bay, approximately, 1,000 feet south of Cape Blue. Limestone outcrops approximately 2 miles northwest of Linwood along the edge of and extending out into Georges Bay. (See Figure 1, page 5).

Description

This is a dark grey, hard, dense, fine-grained, laminated, basal Windsor limestone. It belongs to the A Subzone. The bedding is well developed, striking N 18° E and dipping 19° NW (Plate 11). The weathered surface is smooth and grey. Numerous fractures and sigmoidal gash veins throughout the limestone have been filled with calcite (Plate 12) and frequently carry minor fluorite. The topmost layers of the limestone have been intensely folded.

The limestone is 15 to 20 feet thick with very little over-burden. It strikes inland more or less at right angles to the shoreline and is underlain by a reddish brown siltstone. Slippage along the bedding planes is striking N 30° W.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Lw-1-1	39.25	7.22	1.65	49.70	0.66

LOWER SOUTH RIVER AREA

LOWER SOUTH RIVER (1-1) (1-2)

This occurrence of limestone is located one mile southwest of the bridge at Lower South River on the Trans-Canada Highway in Antigonish County. It outcrops in the woods just north of an old road between Lower South River and Beech Hill. The road is still passable for 4-wheel drive vehicle traffic. It runs through the farmyard of Rodney Chisholm at Lower South River. The outcrop is located 0.8 miles from the Rodney Chisholm farm and is bounded on both ends by power lines. (See Figure 5, page 15).

Description

It is a dark grey, hard, dense, fossiliferous, massive, bituminous, Windsor limestone belonging to the E Subzone. Bedding is very poorly developed. The weathered surface is rough with numerous fossil cavities and is brownish grey in color. In some party of the limestone, fossils are large and well developed, whereas in other sections the shells are small or non-existent. Brachiopods and pelecypods were noted. The limestone is similar in appearance to the occurrences found at Southside Antigonish Harbour and Pomquet. The attitude of the



Plate 11. An A Subzone limestone found along the shore of St George's Bay at Linwood, Antigonish County. (Lw-1-1)



Plate 12. Close-up of above, showing calcite-filled sigmoidal gash veins. Linwood, Antigonish County. (Lw-1-1)



Plate 13. A laminated, A Subzone limestone showing algal growths. Found along the shore of St. George's Bay at Linwood, Antigonish County. (Lw-1-1)



Plate 14. McArras Brook. Oolitic limestone along the shore of the Northumberland Strait, Antigonish County. (MB-1-1)

beds could not be measured due to its massive nature.

This limestone is found in a ridge which trends generally in a northeasterly direction. This ridge is similar to other E Subzone limestone ridges found in the surrounding area and is comprised of a series of mounds or small hills, one of which reaches a height of approximately 30 feet above the surrounding swampy areas. Where examined, the limestone is 800 feet long and approximately 150 to 200 feet wide at its base.

The surrounding area is heavily wooded, mainly with evergreens, and is not easily accessible. There is little or no overburden covering this limestone.

Two drill holes were put down in this limestone in 1951 by the Nova Scotia Department of Mines. The first hole was collared on top of the northeastern end of this ridge. It penetrated 72 feet of grey limestone before entering a red shale horizon. The second hole was collared at the base of the ridge in the swamp. No limestone was cut indicating that the limestone drops off sharply away from the ridge on both sides.

Sample LSR-1-1 was taken from the southwest end of the ridge and LSR-1-2 was taken from the northeast end.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
LSR-1-1	42.85	0.81	0.95	53.85	0.66
LSR-1-2	42.80	3.07	0.83	49.03	0.61

McARRAS BROOK AREA

McARRAS BROOK (1-1)

This occurrence is located along the shore of the Northumberland Strait, southwest of Arisaig and northeast of Knoydart. Limestone can be found outcropping in a 30 foot embankment along the shore, 1.2 miles northeast of the cross-roads at Knoydart. (See Figure 9, page 54).

Description

It is a grey, hard, dense, medium-grained, oolitic, high calcium, Windsor limestone (Plate 14). The weathered surface is grey and smooth. Bedding is well developed, strikes N 10° W and dips 33° SW. It contains some small calcite stringers.

The limestone has been faulted along the shore. It is 20 to 25 feet thick with very little overburden. It is underlain by a red and green shale and is overlain by sandstone and then another limestone bed which is 10 feet thick.

This location is near the eastern margin of Windsor Group of sediments in this area.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
MB-1-1	43.02	0.83	1.67	52.37	0.62

MEADOW GREEN AREA

MEADOW GREEN (1-1)

This occurrence is on the upper section of the Pomquet River at Meadow Green. Limestone is found 20 feet east of the bridge on the road running between Black Avon and Meadow Green. It outcrops in the bank of the river and strikes at right angles to the river. (See Figure 6, page 27).

Description

This is a dark grey, hard, dense, fine-grained, siliceous, Windsor limestone which possibly belongs to the A Subzone. Bedding is well developed striking N 7E E and dipping 80E SE. The weathered surface is light brown. It is overlain by red siltstone and sandstone.

The limestone is 10 feet thick with very little overburden.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
MG-1-1	36.60	12.80	3.38	44.70	0.97

MONASTERY AREA

MONASTERY (2-1)

This occurrence is located on the Meadows Brook, 950 feet upstream from its junction with Monastery Brook. The location is approximately two miles southwest of Monastery on Route 4. Limestone is found outcropping in a 35 foot embankment and is striking into the bank. (See Figure 2, page 5).

Description

It is a reddish brown, hard, very porous, medium-grained, Windsor limestone. Bedding is poorly developed and massive. It strikes east-west and dips 76° NW. There is a great deal of limonite staining. A few small cavities partially filled with calcite crystals and small calcite stringers may be observed. It is a B2 Subzone (Sage, 1954) limestone.

The limestone is only 10 feet thick.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Mo-2-1	41.90	2.93	4.05	48.16	3.17

MONKS HEAD AREA

There are several limestone beds of B, C, and D Subzones (Sage, 1954) at Monks Head on the south shore of St. Georges Bay between Antigonish Harbour and Pomquet Harbour. The thickest of these beds is approximately 10 to 15 feet. The beds along this shore are standing almost vertically and most of the limestones contains some gypsum and argillaceous material, making them of very little economic value.

MONKS HEAD (1-1) (Diamond drilling)

This occurrence is located 0.3 miles west of Monk Pond, three miles northwest of the village of Pomquet. Limestone outcrops in a mound 900 feet long. It is on the east side of the road running around Monk Pond. (See Figure 6).

Description

It is a grey, hard, dense, massive, oolitic, Windsor limestone belonging to the E Subzone. Bedding is very poorly developed and the weathered surface is light brown and smooth. Due to the massive nature of the limestone, its attitude could not be determined.

The elevated area in which the limestone is located outcrops at the edge of an open field. It trends N 25° E, averages approximately 40 feet wide on top and rises in some places to a height of approximately 35 feet with limestone outcropping on both sides. A small quarry had been established in the side of the mound.

The surrounding area is covered mainly with spruce and is easily accessible. There appears to be very little overburden present.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
MH-1-1	43.25	1.16	0.65	52.00	2.35

MONKS HEAD (1-2)

This sample of limestone was taken from an outcrop in a ditch on the east side of the road which encircles Monk Pond. It is approximately 500 to 600 feet south of MH-1-1 between Captain Pond and Monk Pond. (See Figure 6, page 27).

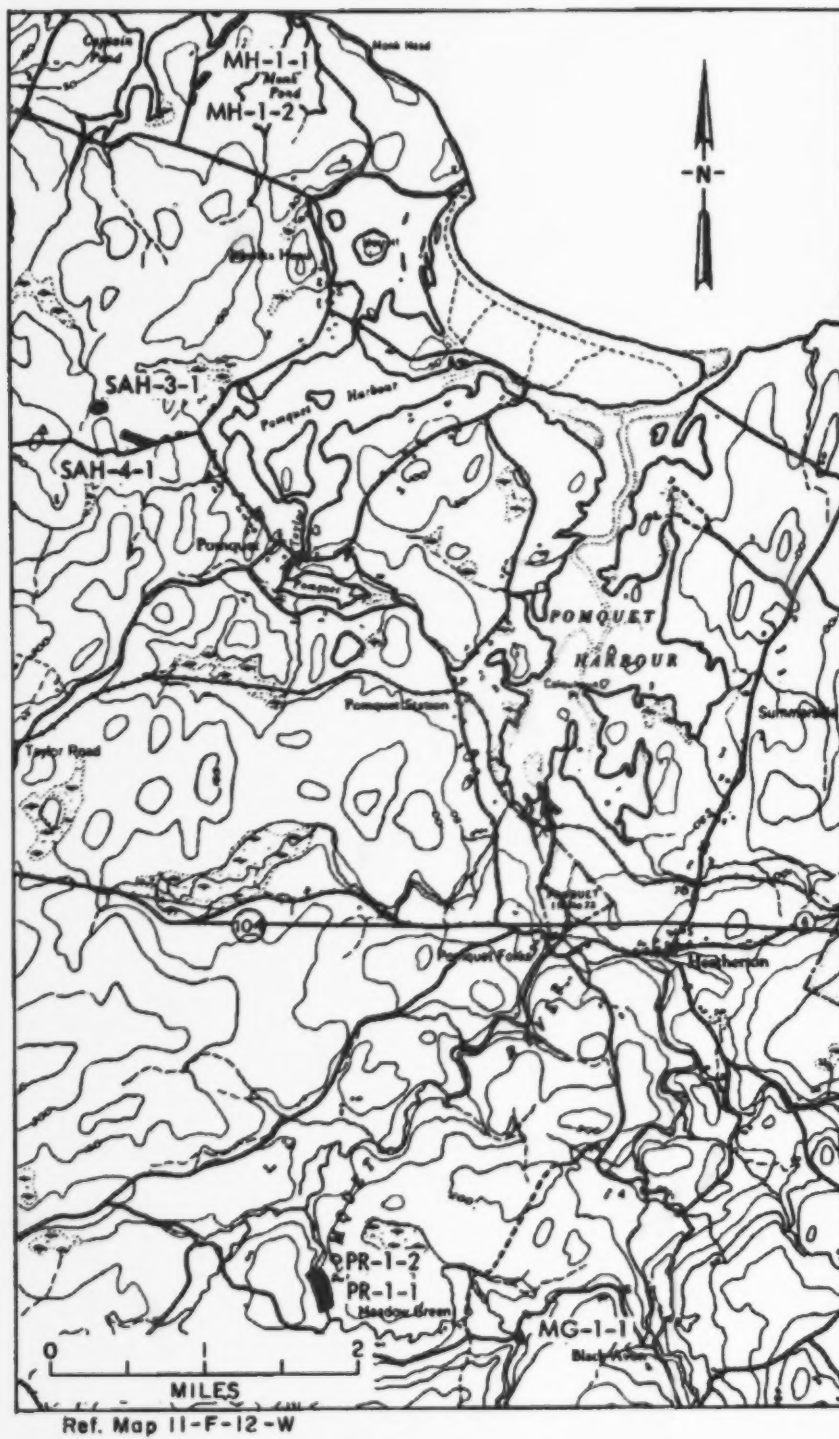


Figure 6

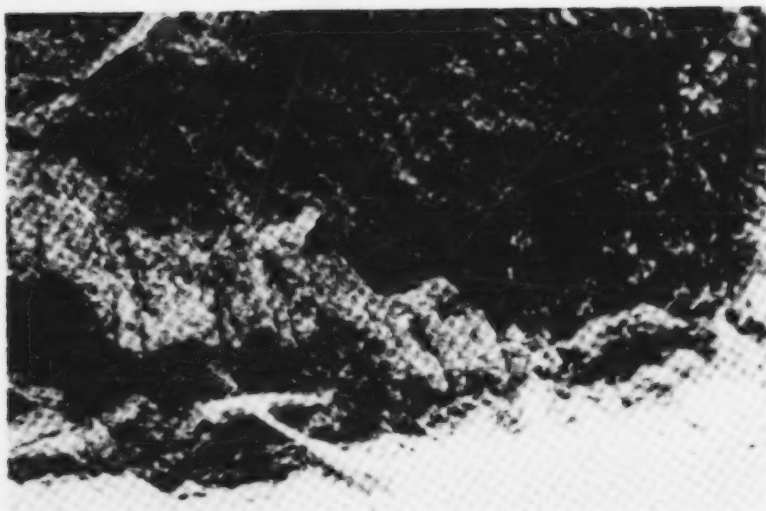


Plate 15. Columnar structures (algal clubs). No sample taken
Monks Head, Antigonish County.

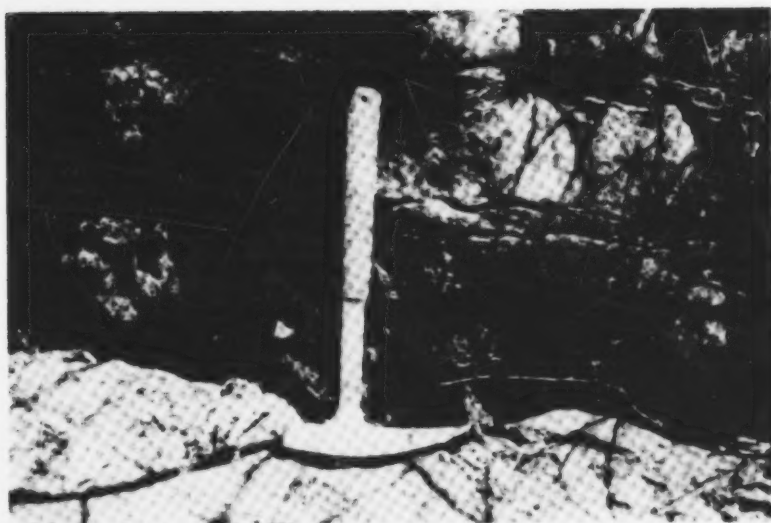


Plate 16. Outcrop of limestone located on the east side of the
Ohio River, Antigonish County. (OH-3-1)

Description

It is a grey, hard, dense, medium-grained, blocky, slightly oolitic, Windsor limestone of the E Subzone. Bedding is poorly developed and the weathered surface is rough and brown in color.

Strike and dip could not be measured because of the broken nature of the out-crop.

The limestone outcrops in the ditch and in the side of a hill on the east side of the road. The deposit appears to be a continuation of MH-1-1. There is very little overburden and no indication as to the actual thickness of the limestone because of the small areal extent of the outcrop.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
MH-1-2	43.40	1.13	1.15	47.50	5.90

THE OHIO RIVER AREA

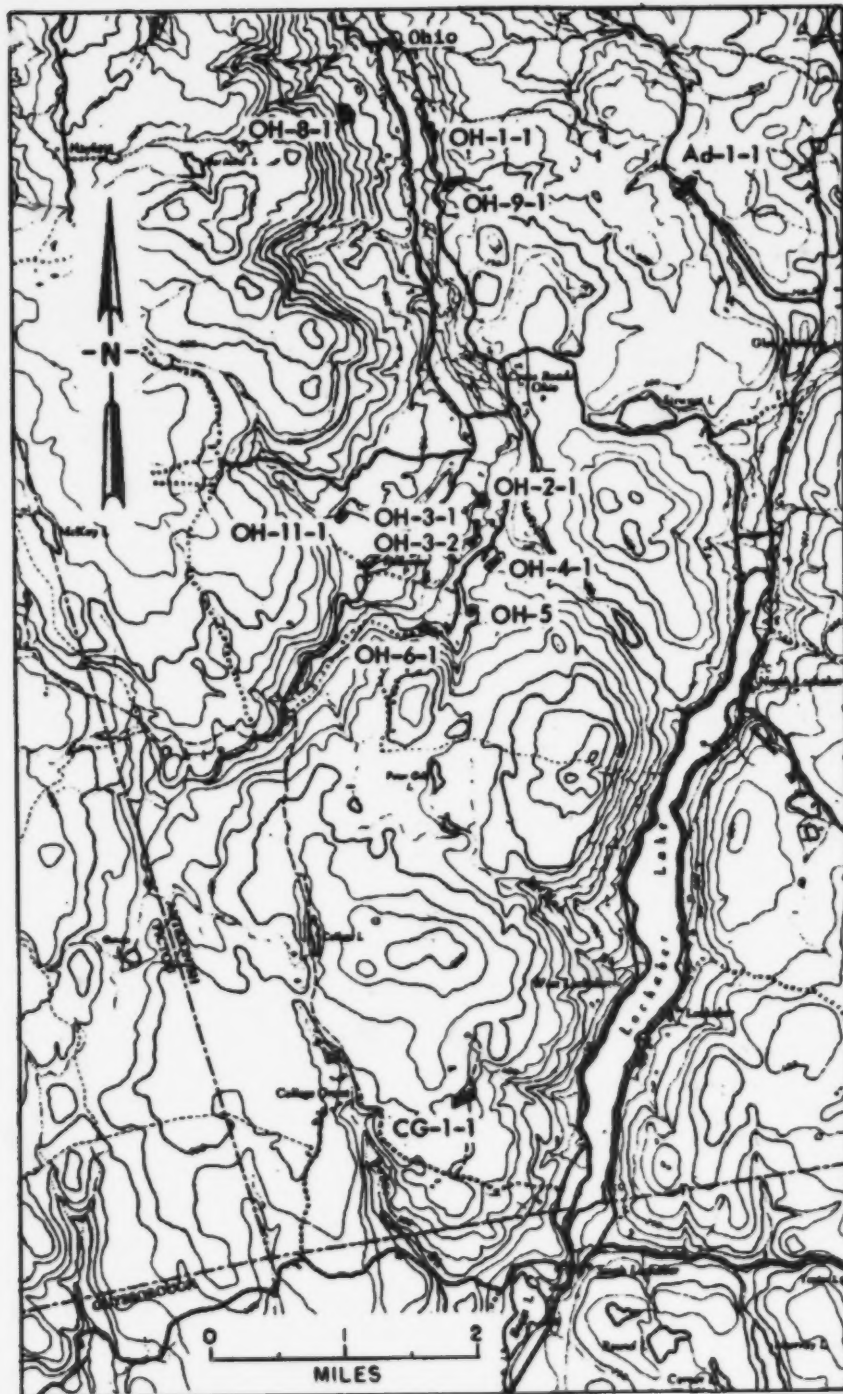
The Ohio River Valley is bounded on the north by St. Joseph and James River and by Hillcrest on the south. Sedimentary rocks of the Windsor Group are found along this river valley, but give way on the west to older rocks belonging to the Browns Mountain Group of Ordovician age and are overlain by sedimentary rocks of the Canso Group of Lower Carboniferous age on the east.

A large number of limestone occurrences found on the west side of the Ohio Valley belong to Subzone A (Bell, 1929). These laminated limestones mark the boundary of the Windsor sediments in this area. The A limestones tend to be high in silica because of their nearness to the ancient shorelines. They are generally only 10 to 15 feet in thickness and are considered to be too thin to be of economic value.

The area to the east of the Ohio River would appear to be a more likely area for thicker beds and better quality limestones. The difference is primarily because the Windsor basin deepened to the east. This preliminary surface inventory did not, however, outline many occurrences which have the necessary quality or quantity to be suggestive of major productive area for either limestone or dolomite. Tested by diamond drilling may, of course, show that larger bodies are present than are apparent from surface examinations.

OHIO RIVER (1-1)

This occurrence is located on the road between Ohio and Cross Roads Ohio, 0.85 miles south of the intersection at Ohio. Limestone can be found poorly exposed on the east side of the road in a 12 foot high embankment. (See Figure 7, page 30).



Ref. Maps 11-E-8-E, 11-E-9-E

Figure 7

Description

It is a dark grey, very hard, compact, fine-grained (almost lithographic), Windsor limestone. Bedding is very poorly developed and the weather surface is smooth and dark grey. There are calcite stringers running through the limestone. The beds appear to be striking N 26° E and dipping 13° NW.

Because of the small areal extent of this outcrop, the thickness of the limestone could not be determined. There appears to be a large amount of drift in the area, although little was apparent in the immediate vicinity of the exposure.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-1-1	40.75	5.86	2.46	49.20	1.93

OHIO RIVER (2-1)

This limestone occurrence is located on the west side of the Ohio River between Hillcrest and Cross Roads Ohio. This outcrop is approximately one mile north of where the Ohio River is crossed by the road at Hillcrest. Limestone forms a 30 foot high embankment along the side of the river and dips down into the river. The east side of the river consists of open farm land while the west side is wooded. (See Figure 7, page 30).

Description

A grey, hard, fine-grained, argillaceous, Windsor limestone is exposed here. It is laminated in a few sections. Bedding is well developed in layers generally 1 to 2 inches thick, which strike N 20E E and dip 65E SE. The weathered surface is greyish brown and smooth. Thin calcite stringers are evident in the outcrop.

Although there is very little overburden in the area, thickness of the section can not be determined due to the limited extent of outcrop.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-2-1	40.50	5.30	1.64	51.20	0.61

OHIO RIVER (3-1)

This occurrence is located on the Ohio River, 900 feet upstream from occurrence OH-2-1. Limestone outcrops on the east side of the river in a 20 foot embankment. This outcrop area is found approximately 1/2 mile downstream from the river crossing at Hillcrest. (See Figure 7, page 30).

Description

It is a dark grey, hard, very compact, argillaceous, fine-grained, Windsor limestone. Bedding is well developed and blocky (Plate 16), striking N 5° E and dipping 29° NW with beds measuring approximately 3 inches in thickness. The weathered surface is smooth, very dark grey, and contains numerous calcite stringers.

The limestone is at least 20 feet thick with very little overburden. The surrounding area is only lightly wooded and is easily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-3-1	39.81	6.24	2.06	49.33	0.92

OHIO RIVER (3-2)

This dolomite is found outcropping 1,500 feet upstream from OH-3-1. It is found on the east side of the Ohio River, approximately 1/2 mile downstream from the river crossing at Hillcrest. Dolomite forms a 40 foot high embankment. (See Figure 7, page 30).

Description

It is a dark grey, hard, dense, fine-grained, argillaceous, Windsor dolomite. Bedding is well developed striking N 23° E and dipping 67° NW. The weathered surface is brownish grey, smooth, and marked by small calcite veins.

The ridge formed by this dolomite has a trend parallel to the river. There appears to be a large amount of dolomite here, but very little information is available due to the limited extent of the outcrop.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-3-2	40.30	9.31	4.82	27.30	18.21

OHIO RIVER (4-1)

This occurrence is located on the east side of the road between Hillcrest and Crossroads Ohio where it forms a small hill behind an abandoned farm, 0.4 miles north of the Hillcrest turn off. Limestone can be found outcropping in the side of this hill at the edge of the woods approximately 300 feet east and to the rear of a house. The hill is elongate and has a trend almost parallel to the road. (See Figure 7, page 30).

Description

It is a dark grey, hard, dense, medium-grained, laminated, Windsor limestone belonging to the A Subzone. Bedding is well developed, striking N 45° E and dipping vertically. The weathered surface varies from yellowish brown in some sections to a dark bluish grey in others.

The limestone does not appear to have a thickness greater than 15 feet and is covered by very little overburden. The surrounding area is heavily wooded with evergreens.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-4-1	39.95	5.95	2.03	50.20	0.59

OHIO RIVER (5) (Float)

This high calcium limestone float is found on the east side of the road, 0.5 miles southeast of Hillcrest. This occurrence can be found in the side of a hill 0.2 miles south of the Ohio Cross Roads-Hillcrest turn off. Large boulders of limestone are exposed in the side of this hill which suggests that the float is near bedrock. (See Figure 7, page 30).

Description

It is a dark grey, hard, dense, fine-grained, Windsor limestone. This float contains numerous calcite stringers, blebs and small solution cavities throughout. The weathered surface of these boulders is smooth, rounded and bluish grey.

There are numerous deep sink holes in an area covering 2 to 4 acres with no outcrop visible. The surrounding area consists mostly of open farm land.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-5	42.41	1.32	0.93	54.07	0.71

OHIO RIVER (6-1)

This occurrence is located on the road which runs south of Hillcrest and is approximately 1/3 mile south of the float occurrence found at OH-5. Limestone is found outcropping on both sides of the road and also in the road. This road runs south on the east side of the Ohio River, crosses the river and runs north again to Hillcrest. (See Figure 7, page 30).

Description

This high calcium limestone is bluish grey, hard, slightly crystalline, massive, fine-grained and belongs to the Windsor Group. Bedding is poorly developed and the weathered surface is light brown and rough. There are numerous calcite stringers, blebs and cavities in the outcrop. The weathered surface has an appearance similar to the Precambrian limestones of Cape Breton. Strike and dip could not be measured due to the massive nature of the occurrence.

Although only a small portion of the limestone can be seen, there appears to be very little overburden. The surrounding area is heavily wooded with evergreens and is easily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-6-1	41.50	2.32	1.12	53.50	0.34

OHIO RIVER (7-1)

This occurrence is located on the west side of the Ohio River across the river from the Roman Catholic Church at St. Joseph. Limestone can be found outcropping on a small brook, 780 feet upstream from the road which runs along the west side of the Ohio River between St. Joseph and Ohio. This brook is 1.6 miles northwest of Ohio and empties into the Ohio River. (See Figure 8, page 35).

Description

It is a dark grey, hard, dense, laminated, siliceous, Windsor limestone belonging to the A Subzone. Bedding is well developed and the weathered surface is smooth and grey. Strike and dip could not be measured due to the broken nature and small areal extent of the outcrop.

This limestone would not appear to be any greater than 15 to 20 feet thick under large amounts of overburden.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-7-1	35.20	15.90	3.52	44.80	0.59



Ref Map 11-E-9-E

Figure 8

OHIO RIVER (8-1)

This occurrence is located 0.7 miles southwest of the village of Ohio. Limestone can be found outcropping in a hill at the edge of the woods on the west side of the Ohio River. This hill is trending almost due north. The outcrop is approximately 2,000 feet west of a road running along the west side of the Ohio River. (See Figure 7, page 30).

Description

It is a grey, hard, medium-grained, fossiliferous, massive, Windsor limestone. Bedding is very poorly developed. The weathered surface is grey and smooth. Boulders of a limestone breccia, that is known to overlie the A Subzone limestone, also occur at this locality. Strike and dip could not be measured due to the limited areal extent and massive nature of the occurrence. It appears however, from the trend of the hills that the beds might be striking in a north or north-westerly direction. This limestone is near the base of the Windsor at its contact with older rocks of Ordovician age.

There are no indications as to the thickness of this limestone which is considered to be covered by light overburden. The area is easily accessible as many logging roads have been established throughout this part of Antigonish County.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-8-1	42.21	2.50	1.35	52.51	0.69

OHIO RIVER (9-1)

This occurrence is located one mile south of the village of Ohio, on the east side of the Ohio River. Limestone outcrops on the side of a 75 foot high hill, north of and dipping towards a small brook at the bottom of the river valley. The location is 970 feet upstream from the road running between Ohio and Cross Roads Ohio. The road crosses this brook at a point 1.2 miles south of the bridge at Ohio village. (See Figure 7, page 30).

Description

It is a dark grey, hard, dense, argillaceous, fossiliferous, Windsor limestone. Bedding is well developed, striking N 80° E and dipping 54° SE. The limestone is thickly bedded at the bottom and more thinly bedded at the top. Its weathered surface varies from light brown to grey in color and is smooth.

The occurrence is 20 to 25 feet thick with very little overburden. It is underlain by a grey shale which, in turn, is underlain by a red siltstone. The area is easily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-9-1	41.45	2.78	1.52	51.78	1.59

OHIO RIVER (11-1)

This occurrence is located on the south side of the road running between Cross Roads Ohio and Keppoch. Limestone can be found outcropping on a spruce covered knoll 25 feet high on the south side of a small brook which runs into the Ohio River between Hillcrest and Cross Roads Ohio. This location is in the northeastern part of a field on an abandoned farm located one mile northwest of the village of Hillcrest and 0.2 miles south of the Cross Roads Ohio-Keppoch road. (See Figure 7, page 30).

Description

It is a dark grey, hard, dense, bituminous, fine-grained, Windsor limestone. Bedding is well developed and blocky, striking N 32° W and dipping 23° SW. The weathered surface is dark grey and smooth. There are numerous pink veins, stringers and blebs of calcite throughout the outcrop.

The limestone is at least 20 feet thick with very little overburden. The area is not easily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
OH-11-1	39.15	5.81	1.98	50.91	0.88

POMQUET RIVER AREA

POMQUET RIVER (1-1) (1-2)

This occurrence is located on the upper section of the Pomquet River 1,170 feet north of where the road between Meadow Green and St. Andrews crosses the river. Dolomite outcrops in the river and on both sides of the river. Sample PR-1-2 was taken farther downstream on this river where the dolomite outcrops again. The beds are striking in the same direction as PR-1-1 but have a dip in the opposite direction. The latter occurrence is exposed in the river and in a 30 foot high embankment. (See Figure 6, page 27).

Description

The material at both locations is a dark grey, very hard, compact, fine-grained, Windsor dolomite with a smooth, light brown weathered surface (Plate 17). The bedding is well developed, striking N 54° W and dipping 23° NE. There is a large



Plate 17. A 30-foot thick bed of Windsor dolomite outcropping along the Pomquet River, Antigonish County. (PR-1-1)



Plate 18. E Subzone, dolomitic limestone outcropping along the Southside Antigonish Harbour road, Antigonish County. (SR-1-1)

amount of minor shearing with fractures almost at right angles to the strike.

The dolomite is at least 25 to 30 feet thick with very little overburden. Total thickness could not be determined. Exposures can be traced along the river for a distance of 500 feet. An overlying limestone conglomerate was observed.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
PR-1-1	44.20	3.87	4.74	29.80	17.50
PR-1-2	44.40	3.08	4.70	32.10	16.20

SOUTH RIVER STATION AREA

SOUTH RIVER STATION (1-1)

This occurrence of dolomitic limestone is located on the road between Lower South River and Southside Antigonish Harbour at South River Station. It outcrops in a 12 foot embankment north of the railway track along the northwest side of this road. The outcrop extends 125 feet along the side of the road. (See Figure 5, page 15).

Description

It is a grey, hard, dense, medium-grained, dolomitic, Windsor limestone. The weathered surface is light brown and the bedding is well developed, with two definite fracture patterns striking N 70° W and dipping 82° NE, and N 21° E and dipping 53° NW (Plate 18). Secondary calcite can be found along the fracture planes. There are also small calcite stringers. The limestone contains small amounts of manganiferous material.

The overburden is approximately 2 feet thick in the vicinity of the outcrop. The limestone is at least 10 feet thick with no indication as to the total thickness. The occurrence laterally does not appear to be very extensive.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
SR-1-1	42.50	5.24	2.95	36.30	12.50

SOUTH RIVER STATION (2-1)

This occurrence is located on the west side of the road between South River Station and Southside Antigonish Harbour, 0.4 miles northeast of SR-1-1. Limestone is found outcropping in a mound approximately 50 feet west of the road. This mound parallels the road, trends N 25° E and is approximately 20 feet high. (See Figure 5, page 15).

Description

This dolomitic limestone is brown, hard, granular, slightly porous, massive and belongs to the Windsor Group. The weathered surface is light brown and rough. Bedding is not visible due to the massive nature of the limestone. A few vugs filled with calcite crystals were noted. This is an E Subzone limestone.

Similar limestone outcrops in an open field approximately 1,000 feet southwest of the mound described above.

The surrounding area is hilly, only lightly wooded, and is easily accessible by road.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
SR-2-1	42.00	2.54	1.57	47.40	5.47

SOUTHSIDE ANTIGONISH HARBOUR AREA

SOUTHSIDE ANTIGONISH HARBOUR (1-1)

This occurrence is located along the east shore of Antigonish Harbour at Southside Antigonish Harbour. The limestone outcrops along the base of a 6 foot embankment near the shore, 0.3 miles due west of the main road at Southside Antigonish Harbour. (See Figure 5, page 15).

Description

This occurrence is a brownish grey, hard, dense, medium-grained, Windsor limestone. The bedding is thinly laminated and well developed, striking N 66° W and dipping 25° NE. The weathered surface is yellowish brown. The limestone has numerous small fractures throughout the outcrop.

Approximately 4 feet of overburden covers the limestone along the shore, but the thickness becomes greater inland. Thickness of the limestone could not be determined but is probably not great.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
SAH-1-1	40.50	7.72	3.42	43.20	4.62

SOUTHSIDE ANTIGONISH HARBOUR (2-1)

This occurrence is located along the east shore of Antigonish Harbour at Southside Antigonish Harbour, outcropping



Plate 19. Southside Antigonish Harbour, Antigonish County. Shows outcrop of massive, B Subzone limestone along the east shore of Antigonish Harbour. (SAH-2-1)

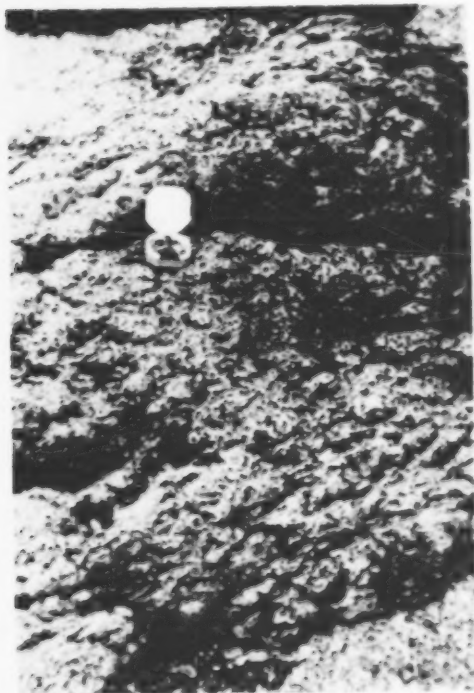


Plate 20. Southside Antigonish Harbour, Antigonish County. Close-up of vuggy B Subzone limestone shown above. (SAH-2-1)

2,890 feet southwest of SAH-1-1. Limestone can be traced along this shore for a distance of 750 feet and may also be seen outcropping along the shoreline of a small island just north of SAH (2-1). It outcrops in a bank ranging from 5 to 15 feet in height. (See Figure 5, page 15).

Description

The occurrence is a grey, hard, compact, massive, pitted, medium-grained, high calcium, fossiliferous, Windsor limestone belonging to the B Subzone. The bedding is very poorly developed (Plate 19). A light grey weathered and pitted surface is characteristic throughout the entire outcrop (Plate 20). For the most part any fossils that were present have been destroyed. This limestone is similar to the occurrence found at Irish Cove on Cape Breton Island but has a greater hardness and is more altered due to folding.

The outcrop appears to strike N 65E E and may dip almost vertically in some sections.

There is no indication from the shorelines as to the thickness of the limestone, but drilling carried out in 1951 on this occurrence proved it to have considerable tonnage. There is very little overburden.

The occurrence extends inland forming a hill trending back from the shoreline. An area up to 68 acres may be underlain by high quality limestone.

An access road has been established to this deposit, a working face has been exposed and several hundred tons of limestone have been produced for agriculture and industrial uses.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
SAH-2-1	43.60	0.73	0.35	55.25	0.55

SOUTHSIDE ANTIGONISH HARBOUR (3-1)

This occurrence is located on the north side of the road running between Antigonish Harbour and Pomquet Harbour. Limestone is found outcropping in an open field 2,035 feet northwest of an old saw mill at the eastern end of the road. This limestone has been quarried to a small extent by the farmers in the surrounding area for agricultural purposes (Plate 21). (See Figure 6, page 27).

Description

It is light brown to light grey in colour, hard, dense, medium-grained, Windsor limestone. The bedding is very poorly developed with a brownish grey, pitted, weathered surface. Extensive fracturing obscures the bedding (Plate 22). This is an



Plate 21. Southside Antigonish Harbour, Antigonish County.
Small quarry in open field. (SAH-3-1)

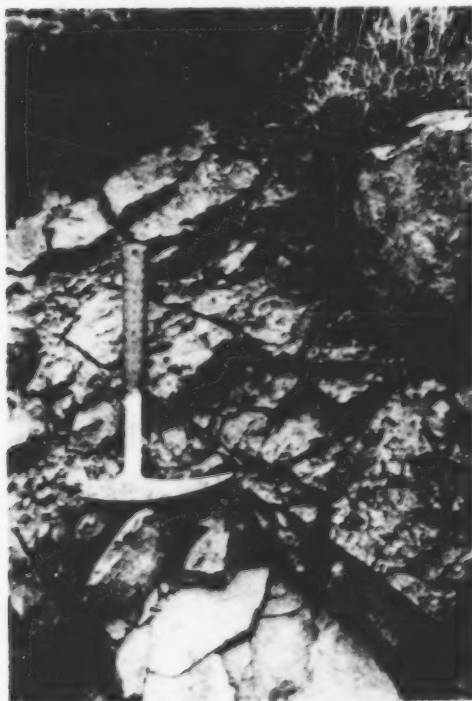


Plate 22. Close-up of above. Antigonish
County. (SAH-3-1)



Plate 23. Southside Antigonish Harbour. E Subzone dolomite found at site of old sawmill near Pomquet, Antigonish County. (SAH-4-1)



Plate 24. Close-up of above dolomite, showing massive and fossiliferous nature. Antigonish County. (SAH-4-1)

E Subzone limestone and may be found outcropping in a small mound trending N 77° W. It does not appear to be very extensive. Although there is very little overburden present, the total thickness could not be observed.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
SAH-3-1	42.60	3.42	3.14	42.90	6.89

SOUTHSIDE ANTIGONISH HARBOUR (4-1) (Diamond drilling)

This dolomite occurrence is located on the site of an old saw mill along the north side of the road running between Antigonish Harbour and Pomquet Harbour. It outcrops in a small quarry on the side of a 35 foot high hill (Plate 23). (See Figure 6, page 27).

Description

It is a light brown, hard, dense, medium-grained, massive, Windsor dolomite exhibiting a light brown, pitted surface due to weathering (Plate 24). The bedding, although very poorly developed, strikes N 63° W and dips 63° SW. This dolomite belongs to the E Subzone and is similar in appearance to SAH-3-1. Although it is much more dolomitic, this occurrence may be the extension of SAH-3-1.

The elevated area which is made up of this dolomite has a strike parallel to the outcrop and can be traced in a northwesterly direction for a distance of 1,200 feet.

There is very little overburden with dolomite being at least 20 to 25 feet thick. The area generally is considered to contain significant tonnages of limestone and dolomite.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
SAH-4-1	44.96	0.76	4.94	33.20	16.40

WEST RIVER AREA

WEST RIVER (1-1)

This occurrence outcrops on the east side of the West River, approximately one and one-quarter miles directly south of the town of Antigonish along the side of a 50 foot high embankment which slopes towards the river. Power lines cross the river at this point. (See Figure 5, page 15).

Description

The occurrence is a brown, hard, dense, medium-grained, siliceous Windsor limestone. The weathered surface is reddish

brown and smooth. Bedding is not well developed.

Because of the limited exposures, no strike or dip could be measured.

There is no indication as to the thickness of this limestone nor the depth of overburden.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
WR-1-1	39.20	7.16	3.93	42.70	4.47

WEST RIVER (2-1)

This occurrence is located south of the West River, 200 yards upstream in a small brook, a tributary of the West River. The limestone is found at brook level and in the stream bed. The area is approximately one-half mile northeast of WR-1-1 and is one mile southeast of the town of Antigonish. (See Figure 5, page 15).

Description

It is a dark grey, hard, dense, argillaceous, medium-grained, dolomitic, Windsor limestone. Bedding is well developed and blocky, striking N 18° E and dipping 21° SE. The weathered surface is brown to yellowish brown (iron staining) with a nodular surface. This is a D Subzone (Sage, 1954) limestone.

Very little of the limestone is exposed thus not permitting a determination of its thickness. The overburden is 7 to 8 feet thick. Diamond drilling will be necessary to determine the extent of this occurrence.

It outcrops in what appears to have been a gravel pit.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
WR-2-1	41.00	5.87	4.27	41.00	7.15

WILLIAMS POINT AREA

WILLIAMS POINT (1-1)

This high calcium limestone occurrence is located at Williams Point, approximately two miles east of the town of Antigonish. The limestone can be found completely encircling a granodiorite hill which is located immediately east of farming establishments on the west side of Williams Point. The limestone, in places, also covers the granodiorite at the top of the hill. This particular sample was taken from the west side of the hill on the property of Colin MacGillivray, 200 feet above sea level. (See Figure 5).

Description

This is a brownish grey, hard, dense, medium-grained, massive, fossiliferous, Windsor limestone belonging to the B Subzone. Bedding is very poorly developed and the weathered surface is rough and grey. The limestone contains fossil cavities.

The limestone shows a slight primary dip away from the granodiorite on all sides.

The limestone probably ranges between 30 and 60 feet in thickness. There is very little overburden near the top of the hill, but the thickness increases quite rapidly as the base of the hill is approached.

The area is mostly open and is readily accessible.

Analysis

Sample	L.O.I.(%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
WP-1-1	43.50	0.60	0.61	55.20	0.36

WILLIAMS POINT (2-1) (Diamond drilling)

This sample was also taken from an elevated area at Williams Point which is located two miles east of Antigonish, at a point 0.5 miles southwest of WP-1-1. The limestone here outcrops along the flanks of a granodiorite hill, at an elevation of 250 feet above sea level. (See Figure 5, page 15).

Description

This high silica limestone is brownish grey, hard, slightly porous, medium-grained, massive, fossiliferous and belongs to the B Subzone of the Windsor Group. Bedding is very poorly developed and exhibits a rough and grey weathered surface (Plate 25). This sample contains numerous small fragments of granodiorite which give rise to a high silica content. Away from the granodiorite-limestone contact the limestone is very pure. Most of the fossils are very small and consist mainly of gastropods, brachiopods and Conularia planicostata. Some of the limestone is algal.

The limestone appears to be flat-lying with some lineation being found in certain sections of the outcrop, probably caused by weathering.

The occurrence in this area outcrops along the side of a granodiorite knoll. The limestone forms a thin covering which decreases away from the hill. Overburden increases greatly towards the base of this elevated area.

Drilling was done on this deposit in 1945 and is reported in the Nova Scotia Department of Mines Annual Report on Mines, 1945.

The area is readily accessible.



Plate 25. Massive, fossiliferous, B Subzone limestone found along the slopes of a granodiorite knoll at Williams Point, Antigonish County. (WP-2-1)

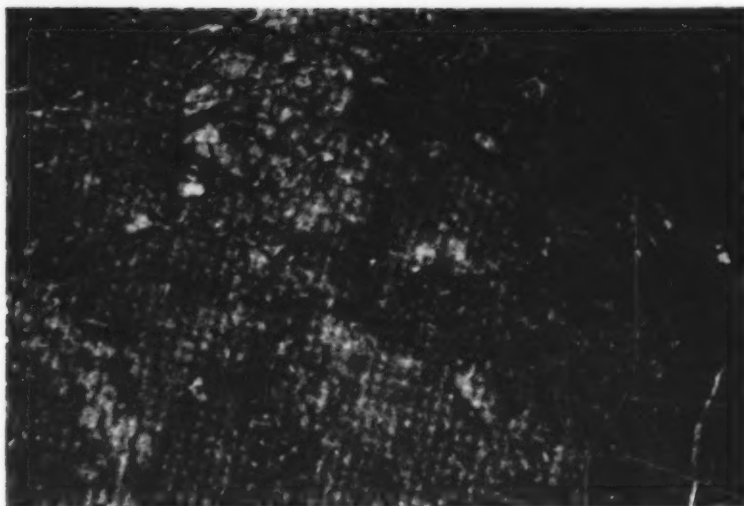


Plate 26. Churchville, Pictou County. Outcrop of massive, Windsor limestone located on the road between Churchville and Eureka. (Ch-2-1)

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
WP-2-1	37.30	13.40	1.37	47.70	0.30

CHAPTER III

GUYSBOROUGH COUNTY

General Geology

The only limestone found in Guysborough County is found in a thin band of Windsor which strikes in a NW-SE direction along or near the shores of the Strait of Canso. The thin bands can be found outcropping intermittently over a distance of 8 miles, from just north of Mulgrave southeast to Melford along the road to Canso.

Celestite and barite have been found associated with the Horton-Windsor contact in this band of Windsor.

This Windsor band consists essentially of an A Subzone laminated limestone throughout the whole length of this Windsor band.

MULGRAVE AREA

MULGRAVE (1-1)

This occurrence is located 3 miles southeast of Mulgrave along the road from Mulgrave to Canso. The limestone outcrops along the side of the road, along the shore of the Strait of Canso and on the north side of a small brook which enters the Strait of Canso across the water from Wright Point on the Cape Breton side. At this point the Horton rocks underlie the Windsor limestone. (See Figure 4, page 13).

Description

It is a dark bluish grey, hard, dense, laminated, A Subzone Windsor limestone. The bedding is well developed with numerous small folds and crenulations. The weathered surface is greyish blue and smooth. There are numerous calcite veins and stringers throughout. These veins run up to one foot in thickness and have no particular orientation. In some parts of the limestone the beds are broken and brecciated. The limestone is underlain by a Horton conglomerate with numerous quartz veins throughout. The Canso is overlying the Windsor band and this is faulted off with Horton again, to the north.

It strikes east-west and dips 40° N. However, the strike and dip vary greatly because of the folding and slumping.

The limestone is 30 feet thick with very little overburden. The surrounding area is heavily wooded and very hilly away from the coast.

The following analysis was taken as a 30 foot channel sample.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Mg-1-1	38.01	9.95	2.38	47.05	0.60

CHAPTER IV

PICTOU COUNTY

General Geology

All limestones examined in Pictou County belong to the Windsor Group of Mississippian age. This Windsor section is found in the central part of Pictou County, beginning at Sunnybrae and widening westward and northward along the valley of the East River. On the east, this Windsor section is in contact with rocks of the underlying Arisaig Group which is Lower to Upper Silurian in age. On the west and south, the Windsor rocks are overlain by the Canso Group. On the north, the Windsor Group is in faulted contact with the overlying Pennsylvanian strata of the Pictou Group. The Windsor section is faulted off just south of the towns of Westville and Stellarton.

There is another small band of Windsor rocks in the north-eastern corner of Pictou County, but very few occurrences of limestone were observed in this area. A small outlier of Windsor limestone also occurs in the vicinity of Limerock, in the western part of the county.

Very little dolomitization was observed with the exception of two occurrences found at Lorne. All other occurrences tested were lower than one per cent MgO.

The limestone in this county seems to bear very little resemblance to Windsor limestones found elsewhere in the Province. They are generally non-fossiliferous, tend to be medium to high in silica and contain large amounts of argillaceous material. Slight metamorphism is evident in the eastern part of the area.

Very few occurrences of limestone were noted as being of chemical grade quality, but several occurrences are of cement grade. No definite tonnages have yet been established for any of these occurrences. More preliminary diamond drilling will be needed however, before a complete assessment of any one deposit can be obtained.

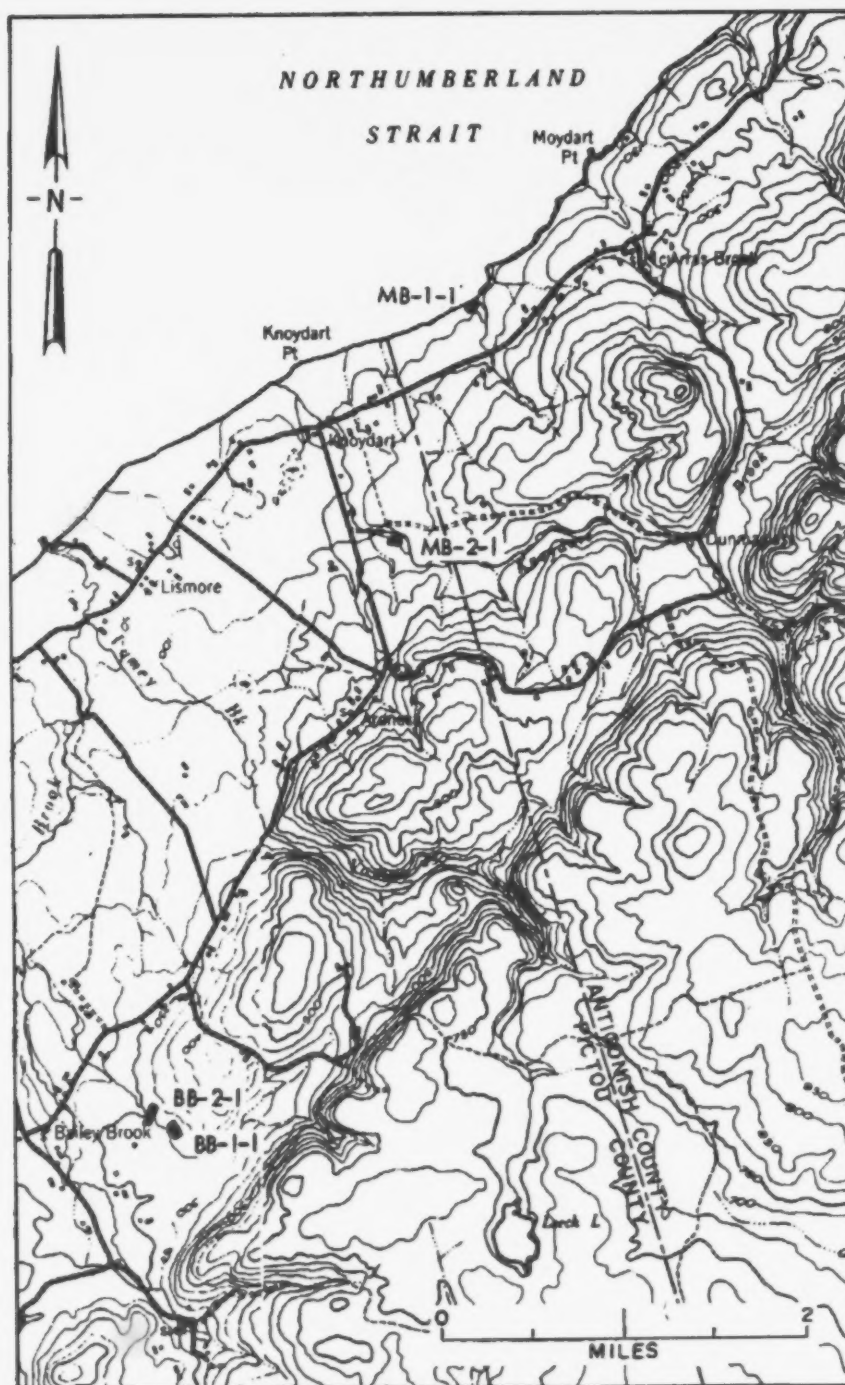
BAILEY BROOK AREA

BAILEY BROOK (1-1)

This occurrence is located on the east branch of the Bailey Brook, 2,560 feet up the brook from where it is crossed by the Bailey Brook road. It is 0.8 miles due east of the school at Bailey Brook. Limestone can be found outcropping on the north side of the brook in a 25 foot high embankment. (See Figure 9, page 54).

Description

This high calcium limestone is dark grey, hard, dense, massive, oolitic and belongs to the Windsor Group. There are numerous pink calcite blebs throughout the outcrop. Bedding is poorly developed, striking N 24° W and dipping northeast at a very low angle.



Ref. Maps 11-E-9-W, 11-E-9-E

Figure 9

The limestone is overlain by a red, arkosic sandstone approximately 20 feet thick, making utilization of the stone difficult.

The surrounding area is lightly wooded and not readily accessible.

Analysis

Sample	L.O.I.(%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
BB-1-1	42.50	0.84	1.58	53.60	0.61

BAILEY BROOK (2-1)

This occurrence is also located on the east branch of Bailey Brook, 2,260 feet upstream from the Bailey Brook road and 306 feet downstream from BB-1-1. The outcrop is 0.8 miles due east of the school at Bailey Brook, exposed in the brook and at the base of a 20 feet high hill. (See Figure 9, page 54).

Description

It is a dark grey, hard, dense, laminated, Windsor limestone belonging to the A Subzone. Bedding is very well developed striking N 8° E and dipping 35° NW. The weathered surface is light grey and smooth. There are numerous small calcite stringers running parallel to the dip plane.

The limestone is approximately 10 to 15 feet thick with 20 feet of overburden.

Analysis

Sample	L.O.I.(%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
BB-2-1	38.50	8.70	2.85	48.30	0.37

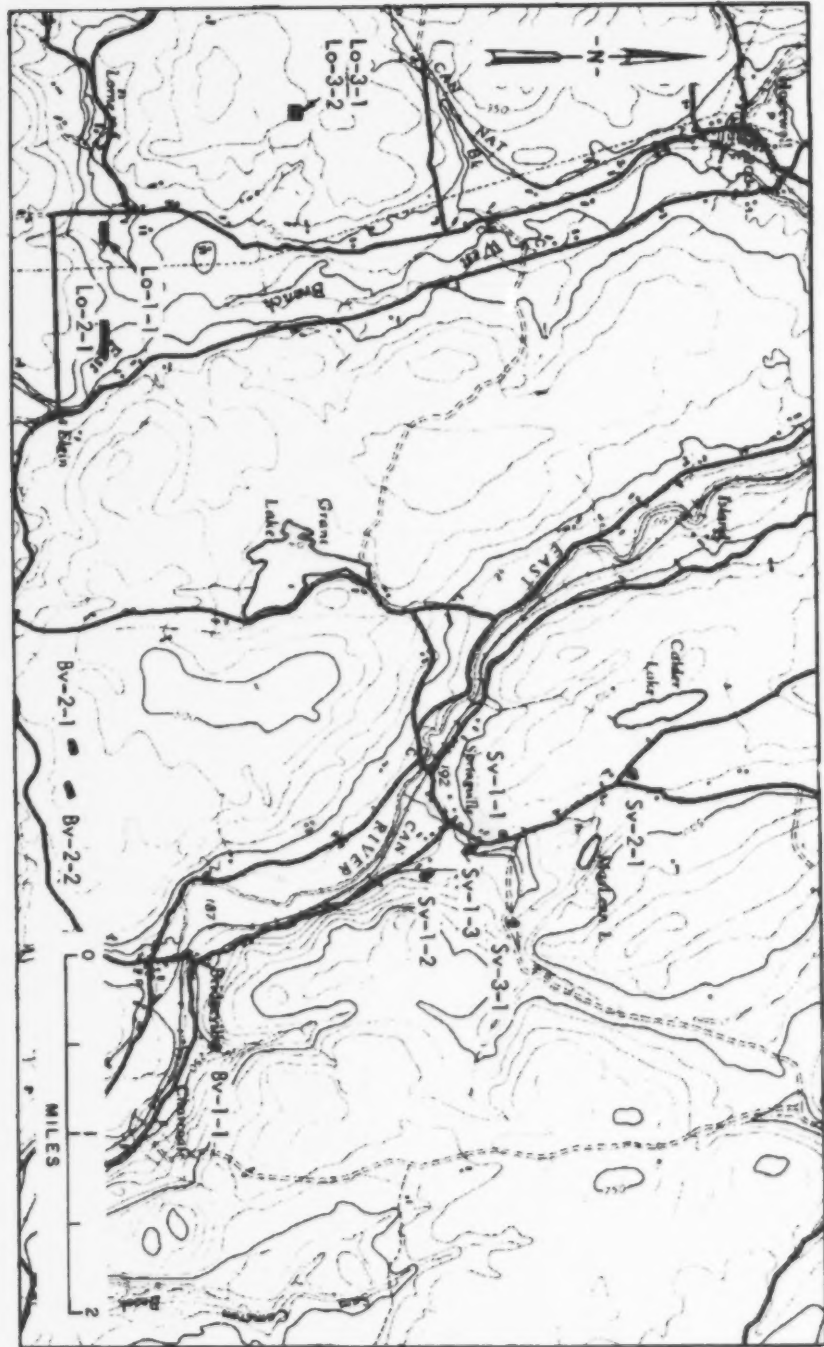
BRIDGEVILLE AREA

BRIDGEVILLE (1-1)

This occurrence is located on the north side of the road between Bridgeville and Sunnybrae, on the north side of the East River. This location is 4.4 miles northwest of the highway intersection at Sunnybrae. Limestone is found outcropping between Bridgeville and Charcoal. It is associated with iron and manganese which were mined in the area at one time. Limestone is found outcropping at the base of a ridge which runs north-south to the rear and north of the house and property of Mr. Bert Jordan. This is very near the Windsor-Silurian contact in this area. (See Figure 10, page 56).

Description

This relatively high calcium limestone is light brown, hard, medium-grained, granular and belongs to the Windsor Group.



Ref. Map 11-E-7-E

Figure 10

The limestone is massive and contains many fractures and small, black stringers of manganiferous material. The massive nature of this occurrence prohibited a measurement of its attitude.

There is no indication as to the thickness of the limestone nor the thickness of the overburden. The area is hilly and wooded. To the east of this occurrence, approximately 500 feet north of the road there is evidence of what appears to have been an old iron quarry.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Bv-1-1	41.60	3.68	2.00	52.50	0.20

BRIDGEVILLE (2-1) (2-2)

This occurrence is located north of the road running between Bridgeville and Centredale, 0.9 miles east of the crossroads at Centredale. Limestone is found as float to the rear of a clearing immediately beyond the edge of a wooded section. The clearing is accessible by a wood road which runs by the foundations of an old farm property. This float is found in a ridge which runs east-west, 930 feet due north of where this wood road leaves the main road. (See Figure 10, page 56).

Description

This occurrence is a dark grey, hard, fine-grained, massive, Windsor limestone. The weathered surface is bluish grey and smooth with no bedding visible. There are also a few calcite stringers running through the float.

There is no indication of outcrop here or at Bv-2-2 which is located 2,140 feet due east of Bv2-1 and along the same wood road. This is the same type of limestone as that found at Bv-2-1.

Other float is found along this road 1,800 feet due east of Bv-2-1 and 300 feet west of Bv-2-2.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Bv-2-1	41.60	3.39	3.10	51.50	0.72
Bv-2-2	39.40	6.15	3.36	49.10	0.59

CHURCHVILLE AREA

CHURCHVILLE (1-1)

This limestone occurrence is located on the road between Churchville and Eureka. Limestone float can be found along the north side of this road, 0.8 miles from the highway intersection at Churchville. There is no outcrop of limestone visible in the vicinity. (See Figure 11, page 59).

Description

It is a dark grey, hard, dense, fine-grained, Windsor limestone. There is no bedding in evidence. The weathered surface is light grey and smooth. There are numerous calcite stringers throughout and also minor amounts of pyrite. A red siltstone outcrops nearby. The surrounding area is heavily wooded.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Ch-1-1	41.72	3.28	1.82	52.08	0.56

CHURCHVILLE (2-1)

This occurrence is located on the road between Churchville and Eureka, 0.25 miles east of the crossroads and 0.95 miles west of the highway intersection at Churchville. Limestone outcrops on north side of a sloping bank which dips down to the road. This occurrence is west of Ch-1-1. (See Figure 11, page 59).

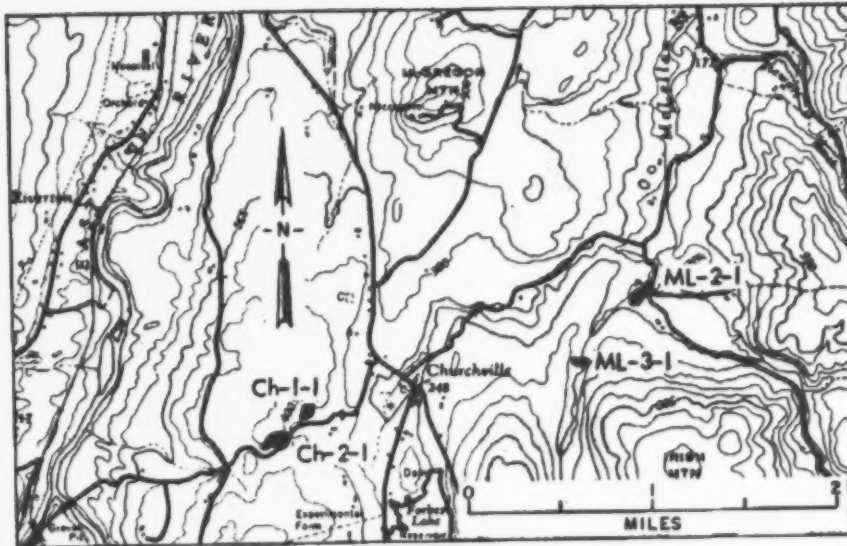
Description

The deposit is similar to Ch-1-1. It is a dark grey, hard, massive, fine-grained, fossiliferous, Windsor limestone. There are numerous calcite stringers present in the outcrop. The fossils are mainly very small crinoid stems which stand up in relief on the weathered surface. These crinoid stems are generally round but some have a pentagonal shape. The limestone also contains a few brachiopods shells. The bedding is poorly developed with a probable strike of N 68° W and a dip of 19° SW. The weathered surface is light grey and smooth (Plate 26).

There is no indication as to the thickness of this horizon and the area exhibits very little overburden. The surrounding area is heavily wooded.

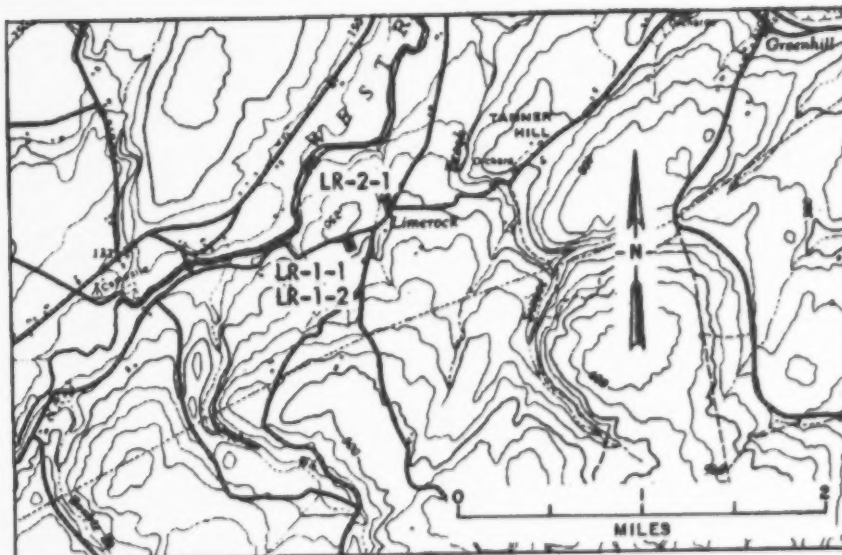
Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Ch-2-1	41.10	4.28	3.67	50.50	0.60



Ref. Map 11-E-10-E

Figure 11



Ref. Map 11-E-10-W

Figure 12

LIMEROCK AREA

LIMEROCK (1-1) (1-2) (Diamond drilling)

This occurrence of high calcium limestone is located 350 feet west of the crossroads at Limerock. Limestone outcrops in an old quarry (Plate 27) on the south side of the road and 50 feet into a wooded area. (See Figure 12, page 59).

Description

The deposit is a dark grey, hard, dense, fine-grained, Windsor limestone. Bedding ranges from well developed, semi-laminated to massive and poorly developed (Plate 28). It has a light grey to weathered surface. Samples LR-1-2 and LR-1-1 were taken from different parts of the quarry, but are of similar material. The beds in this quarry strike N 36° W and dip 29° SW.

The surrounding area is slightly hilly and is only lightly wooded, mostly with spruce.

There is very little overburden around this quarry area. The limestone appears to be at least 20 feet thick.

Analysis

Sample	L.O.I.(%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
LR-1-1	41.98	3.30	1.79	52.20	0.61
LR-1-2	42.88	1.42	1.37	53.49	0.74

LIMEROCK (2-1)

This occurrence is located directly behind the schoolhouse at Limerock, near the crossroads in that village. Limestone can be found outcropping on either side of a small brook which flows behind the schoolhouse. The outcrop is 50 feet from the west side of the road. (See Figure 12, page 59).

Description

It is a dark grey, hard, dense, medium-grained, Windsor limestone containing calcite stringers. The limestone is massive and its bedding, which strikes N 48° E and dips 50° NW, is very poorly developed. It has a light grey weathered surface.

The surrounding area is slightly hilly and is lightly wooded with spruce.

There appears to be no more than 5 feet of overburden with a limestone thickness of between 30 and 40 feet. A hole drilled for water behind the school intersected limestone after passing through 12 feet of overburden. No sample was taken.

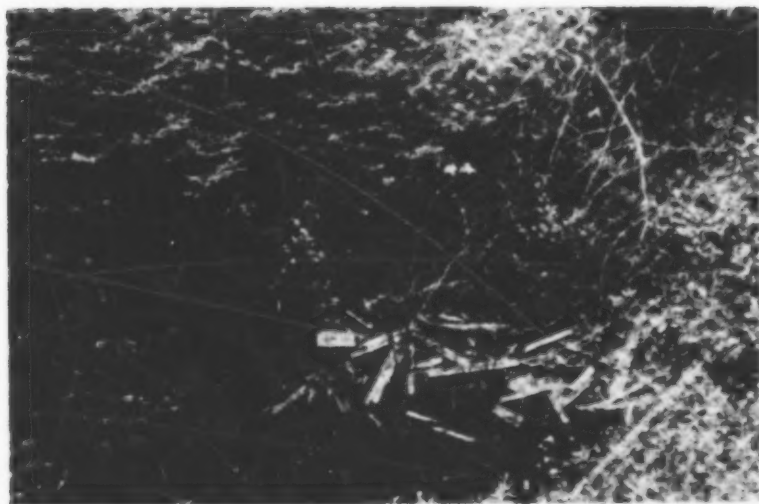


Plate 27. Small limestone quarry located at Limerock, Pictou County. (LR-1-1)

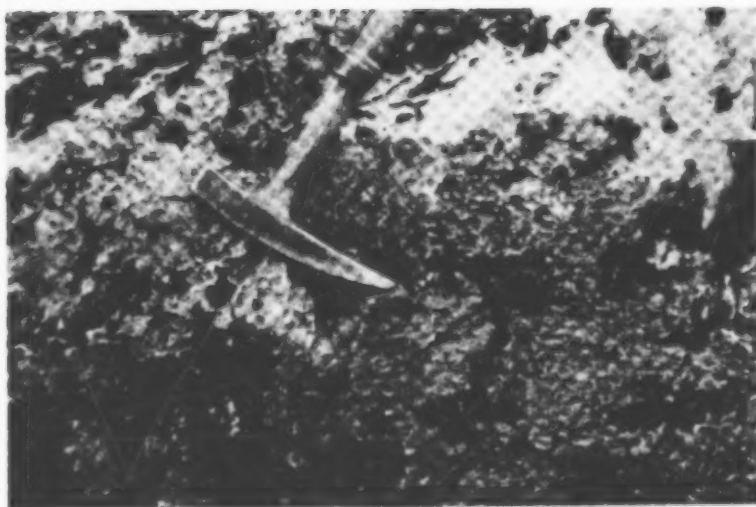


Plate 28. Limerock, Pictou County. Limestone found in the above quarry. (LR-1-1)

LORNE AREA

LORNE (1-1)

This occurrence of high silica limestone is located on Big Brook and outcrops on the south side of this brook, 200 feet east of the Hopewell - Trafalgar road in a 20 foot high ridge which runs parallel to the brook. The beds dip down into the brook and form the bank in this area. (See Figure 10, page 56).

Description

It is a dark grey, hard, dense, medium-grained, thinly bedded Windsor limestone (Plate 31). The bedding is well developed striking N 72° E and dipping 40° SE. The weathered surface is light grey. There are numerous calcite stringers throughout the limestone. The strike of the limestone parallels the strike of the ridge.

There is no indication as to the thickness of the limestone, but it is covered with very little overburden. The surrounding area is wooded.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Lo-1-1	34.62	15.30	4.54	40.25	4.08

LORNE (2-1)

This occurrence is located on the west branch of the East River one-half mile northwest of the highway intersection at Elgin. Limestone can be found outcropping on both sides of and in the river. It can be traced along the river for several hundred feet. This location is almost due north of an abandoned farmhouse on the north side of the road between Elgin and Lorne. (See Figure 10, page 56).

Description

It is mainly a dark grey, hard, dense, argillaceous, siliceous, fine-grained, slightly dolomitic, Windsor limestone. Bedding is well developed with thickly laminated sections alternating with thinly laminated sections. The limestone grades into a hard, quartzitic sandstone at its base and to a shaly limestone at the top of the section. The weathered surface is brownish grey. There are numerous calcite stringers. It is striking N 65° W and dipping 42° SW.

The limestone appears to be 15 to 20 feet thick with very little overburden. The surrounding area is heavily wooded.

This limestone is neither of significant quantity nor quality to be of economic value.



Plate 29. Lorne, Pictou County. One of numerous small limestone pits in the area. (Lo-3-1)



Plate 30. Lorne, Pictou County. Massive, light grey, Windsor limestone found in the pit shown above. (Lo-3-1)

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Lo-2-1	37.30	10.60	5.98	39.83	6.21

LORNE (3-1) (3-2)

This occurrence of high calcium limestone is located on the property of Andrew Dunbar at Lorne. This property is located 1.1 miles north of the corner at Lorne and 2.4 miles south of the railway crossing at Hopewell on the Lorne - Hopewell highway. Limestone outcrops in a ridge trending N 80E E, 0.7 miles west of Andrew Dunbar's farm near the edge of the woods and in the wooded areas. There are numerous small pits from which limestone was quarried forty to fifty years ago (Plate 29) (See Figure 10, page 56).

Description

The lower section (Lo-3-1) is a grey, hard, fine-grained, massive, Windsor limestone. Bedding is poorly developed and the weathered surface is grey and rough. There are numerous calcite stringers throughout the outcrop. The upper section (La-3-2) is light grey, hard, dense and massive (Plate 30). It contains light red ferruginous staining and is much more compact than the lower section. Lo-3-2 is found farther west. The limestone is striking N 37° W and dipping 36° SW.

Limestone outcrops over a large area and there are several old pits, one of which shows a 15 foot face of limestone. Sample Lo-3-1 is a channel sample taken from this 15 foot section.

There appears to be very little overburden and the limestone is at least 20 to 30 feet thick. The area is heavily wooded but is accessible by 4-wheel drive vehicles.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Lo-3-1	41.26	4.28	2.08	52.10	0.55
Lo-3-2	41.06	2.42	1.55	53.70	0.24

McARRAS BROOK AREA

McARRAS BROOK (2-1)

This occurrence is located 0.5 miles south of Knoydart and can be found outcropping in the road which runs along the side of Knoydart Brook. It is found just south of a logging road which runs between Knoydart and Dunmaglass. Limestone out-crops

in the road and in a small bank along the side of the road. (See Figure 9, page 54).

Description

This high calcium limestone is brownish grey, hard, very compact, fine-grained and belongs to the Windsor Group. The weathered surface is brown and rough. Bedding is well developed, striking N 25° W and dipping 25° SW.

This limestone may be a continuation of MB-1-1 which is found along the shoreline of the Northumberland Strait.

There appears to be very little overburden but the thickness of the limestone could not be measured because of the small areal extent of the outcrop.

This limestone is overlain by a dark brown sandstone.

Analysis

Sample	L.O.I.(%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
MB-2-1	41.09	2.36	2.49	52.19	0.47

McLELLAN BROOK AREA

McLELLAN BROOK (2-1)

This occurrence is located on the west branch of McLellan Brook which runs below and on the west side of Irish Mountain. Limestone outcrops on the north side of this brook where it is crossed by the road between McLellan Brook and Irish Mountain and again on the south side of the brook 150 to 200 feet upstream from the bridge. It also outcrops in a 20 foot high ridge behind the house of J. L. Murdoch. This ridge is striking N 70° W. (See Figure 11, page 59).

Description

The material is a grey, very hard, compact, massive, fine-grained, Windsor limestone. Bedding is very poorly developed (Plate 32). The weathered surface is light brown and smooth with numerous calcite stringers. Strike and dip could not be determined.

The limestone is at least 20 feet thick with very little overburden. The surrounding area is only lightly wooded and is readily accessible.

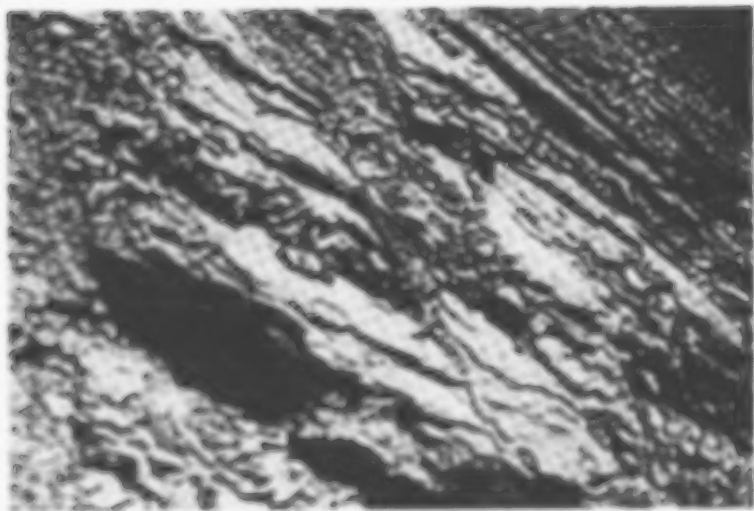


Plate 31. Thinly bedded Windsor limestone found at Lorne,
Pictou County. (Lp-1-1)



Plate 32. McLaughlin Brook, Pictou County. High quality,
compact Windsor limestone found on the west
side of Jack Mountain. (Mq-2-1)

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
ML-2-1	42.40	2.72	1.63	53.10	0.61

McLELLAN BROOK (3-1)

This occurrence is also located on the west branch of the McLellan Brook, 3,600 feet upstream from ML-2-1. Limestone outcrops on the west side of the brook and in the brook. The brooks runs north and west of Irish Mountain. (See Figure 11, page 59).

Description

This high calcium limestone is dark grey, hard, dense, fine-grained, massive and belongs to the Windsor Group. Bedding is very poorly developed but strikes N 62° E and dips 72° NW. It exhibits a bluish grey, smooth, weathered surface. There are numerous calcite stringers throughout.

The limestone is only 15 feet thick with approximately 15 to 20 feet of overburden. The surrounding area is heavily wooded and not readily accessible.

A similar band of limestone is found 2,000 feet downstream and is only 5 feet thick. It is striking north and is dipping 54° W.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
ML-3-1	42.10	1.43	2.20	53.20	0.44

SPRINGVILLE AREA

SPRINGVILLE (1-1)

This occurrence is located in the village of Springhill, 5.5 miles north of the highway intersection at Springville. The limestone has been quarried to a small extent (Plate 13). It is found on the west side of the road to New Glasgow in a small ridge which reaches a height of 25 feet. (See Figure 15, page 56).

Description

This occurrence is light grey, hard, compact, fine-grained, slightly metamorphosed and belongs to the Windsor Group. A dark grey weathered surface gives the appearance of a very fine-grained quartzite to the outcrop (Plate 14). The beds appear to strike at about N 51° W and dip 25° NW, but as bedding is poorly developed the exact attitude of the deposit is difficult to ascertain.



Plate 33. Springville, Pictou County. Small limestone pit found on the west side of the Springville-New Glasgow highway. (Sv-1-1)



Plate 34. Springville, Pictou County. Slightly metamorphosed, very hard, compact, Windsor limestone found in the pit shown above. (Sv-1-1)

There is no indication as to the thickness of the limestone. Very little overburden is present. The surrounding area is open farm land.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Sv-1-1	42.80	1.25	0.85	54.40	0.33

SPRINGVILLE (1-2)

This showing is located east of the village of Springville. There is a large limestone quarry at this location with an east face approximately 150 feet high (Plate 35). Limestone is found in the quarry 1,000 feet northeast of the Springville - Bridgeville highway and 0.4 miles southeast of the highway intersection at Springville. The quarry can be reached by an abandoned road, now impassable. (See Figure 10, page 56).

Description

The limestone varies from dark grey, hard, compact, thickly bedded to light brown, hard, slightly porous and limonitic. It belongs to the Windsor Group. The weathered surface ranges from light to dark brown. Bedding is poorly developed. The limonitic limestone contains minor amounts of malachite, azurite, barite and calcite. It is striking N 15° W and is dipping 22° SW.

There is very little overburden and the limestone appears to be at least 50 to 60 feet thick. A large volume of rock has been taken out of this quarry.

The limestone contains too many impurities to be of economic value as a chemical grade material.

Analysis

No sample was taken because of the large amount of drilling carried out in this area. Limestone has been sampled from the cores of these holes.

SPRINGVILLE (1-3)

This is a continuation of occurrence Sv-1-1. It is located between Sv-1-1 and Sv-1-2 and can be found outcropping on a small brook 1,430 feet downstream from the road between Springville and Brookville. This brook runs parallel with the road between Springville and New Glasgow in a southerly direction through the village of Springville. Limestone outcrops on the brook and in a small ridge on both sides of the brook. (See Figure 10, page 56).

Description

It is a light grey, very hard, compact, fine-grained, Windsor limestone. Bedding is not well developed. The weathered surface is bluish grey and smooth. The outcrop area is not large enough to permit the measurement of a strike and dip.

There appears to be very little overburden covering the limestone. The surrounding area is heavily wooded but easily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Sv-1-3	34.62	8.72	8.09	43.48	0.80

SPRINGVILLE (2-1)

This occurrence is located at the intersection of the two roads which run north from Springville on either side of Forbes Lake. A small quarry lies just northeast of the main road running between Springville and New Glasgow (Plate 37). The maximum height of the quarry wall at this location is 20 feet. (See Figure 10, page 56).

Description

This high calcium limestone is light grey, very hard, fine-grained and belongs to the Windsor Group. It is almost lithographic and appears to fracture conchoidally (Plate 38). The bedding layers range up to 2 inches in thickness and are well developed. Its weathered surface is smooth, dark grey and contains numerous calcite stringers throughout the outcrop. The limestone grades into a conglomerate which in turn grades into an arkose. The beds strike N 14° W and dip 39° SW. This deposit appears to be a continuation of Sv-1-1 and Sv-1-2. The limestone at this location is at least 20 feet thick is overlain by very little or no overburden.

The surrounding area is wooded but easily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Sv-2-1	42.40	1.98	0.82	53.50	0.38

SPRINGVILLE (3-1)

This occurrence is located at the Silurian-Windsor contact, immediately north of the road running between Springville and Brookville. Limestone can be found outcropping across a small brook which runs parallel to and north of this road. The brook at this point is 90 feet north of the road and is 0.55 miles from the intersection of this road and the Springville - New Glasgow road. The outcrop strikes across this small brook and forms a 10 foot high ridge. (See Figure 10, page 56).

Description

This limestone is dark grey, hard, dense, fine-grained, massive, siliceous and belongs to the Windsor Group. The limestone is very impure and contains many bands of siliceous material. Bedding is very poorly developed. The weathered surface is dark brown and smooth. Many calcite blebs and stringers are evident. The lower section is conglomeratic, containing portions of the underlying Silurian material. The beds strike N 56° E and dip 41° SE.

The limestone is approximately 20 feet thick and is covered by very little overburden.

The area is easily accessible but the limestone is too impure to be of any possible economic value other than for use in cement production.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Sv-3-1	35.32	14.80	4.24	44.38	0.46

SUNNYBRAE AREA

SUNNYBRAE (1-1)

This occurrence is located 1.9 miles west of the highway intersection at Sunnybrae and is immediately north of the road running between Glencoe and Iron Rock. Limestone outcrops in what had originally been a small quarry. This quarry is located 245 feet north of the road and is due north of where the McDonald Brook empties into the East River. It has a wooded, narrow draw for an entrance. (See Figure 13, page 77).

Description

The limestone ranges from dark bluish grey, hard, fine-grained and thickly bedded at the base of the section to a light brown, earthy, porous, medium-grained, thinly laminated material at the top. It belongs to the Windsor Group. Numerous calcite stringers fill fractures in the lower part of the section where small undulating folds are displayed. Bedding is



Plate 35. Large limestone quarry found at Springville, Pictou County. (Sv-1-2)



Plate 36. Sunnybrae, Pictou County. Outcrop of Windsor limestone located 2 miles west of Sunnybrae. (Sb-1-1)

well developed throughout, striking N 66° E and dipping 62° SE (Plate 36). The weathered surface is grey and mostly smooth. The limestone is at least 20 to 30 feet thick with very little overburden.

The quarry is approximately 100 feet wide and 150 feet long with the north wall reaching a height of approximately 75 feet.

The surrounding area is hilly and heavily wooded.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Sb-1-1	39.30	5.84	6.38	49.20	0.40

SUNNYBRAE (1-2) (1-3)

This occurrence is found 1.8 miles west of the highway intersection at Sunnybrae. The limestone found in this quarry is a continuation of that found at Sb-1-1 (quarry #1). This quarry can be seen from the road running between Glencoe and Iron Rock and is 500 feet southeast of quarry #1. It is larger than quarry #1. The walls are very steep and reach a height of approximately 100 feet (Plate 39). (See Figure 13, page 77).

Description

The limestone is the same as in quarry #1 with hard, dense, fine-grained, dark bluish grey material on the bottom (on the east side of the quarry) and brown, porous, medium-grained stone near the top. This upper section contains large ripple marks along the bedding planes on its underside (Plate 40). The limestone is more massive than that found at Sb-1-1. It is striking N 15° W and dipping 72° SW.

The deposit is at least 50 feet thick with very little overburden. The surrounding area is hilly and heavily wooded, but is easily accessible.

Sample Sb-1-2 was taken from the upper section and Sb-1-3 from the lower section of limestone in this quarry.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Sb-1-2	42.11	2.22	0.96	52.30	0.98
Sb-1-3	40.10	4.81	1.72	51.20	0.97

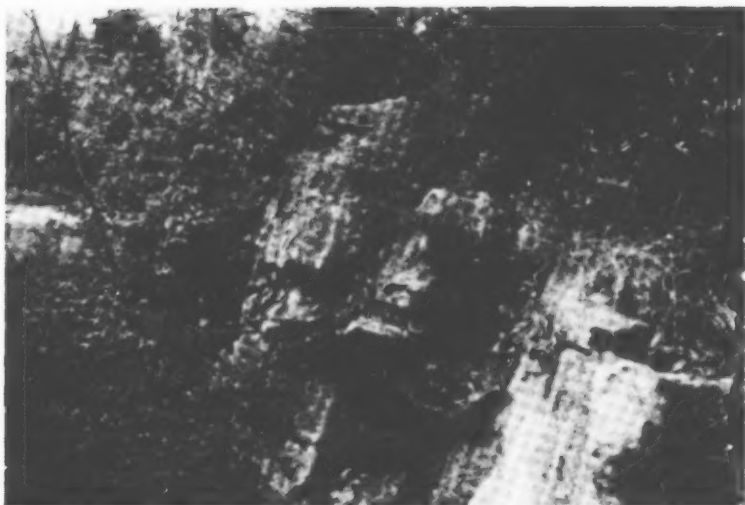


Plate 37. Springville, Pictou County. Small limestone quarry found just northeast of the Springville-New Glasgow highway. (Sv-2-1)

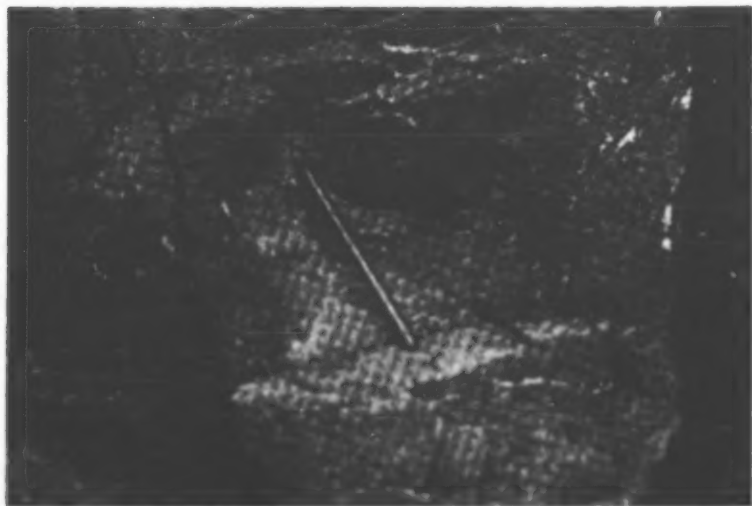


Plate 38. Springville, Pictou County. Close-up of the limestone shown above, showing lithographic nature of the limestone. (Sv-2-1)

SUNNYBRAE (2-1)

This occurrence is located at Sunnybrae, approximately 200 feet upstream from the bridge which crosses the East River at Sunnybrae. Limestone outcrops in a 30 foot embankment on the south side of the East River. (See Figure 13, page 77).

Description

This limestone is, for the most part, light grey, hard, dense, massive, medium-grained and siliceous. It belongs to the Windsor Group. Bedding is poorly developed except for a few shaly layers which have well developed bedding. The weathered surface is greyish brown and rough. The limestone is conglomeratic in part, with a few calcite stringers. It is striking N 62° W and dipping 59° SW. The limestone would appear to be at least 20 to 30 feet thick and little overburden is evident.

The limestone is located at the most easterly point of outcrop of the Windsor Group along the East River.

The surrounding area is populated and open.

Analysis

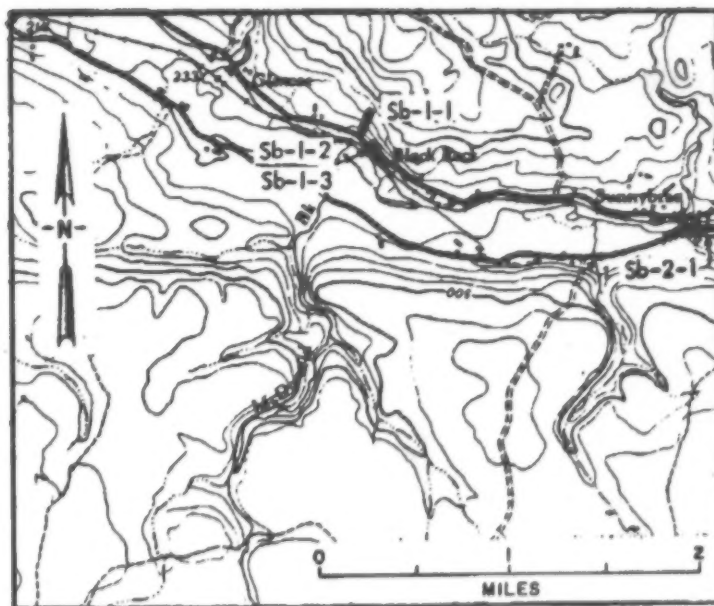
Sample	L.O.I.(%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
Sb-2-1	39.60	5.85	2.00	51.40	0.36



Plate 39. Small limestone quarry found 1.8 miles west of Sunnybrae, Pictou County. (Sb-1-2)

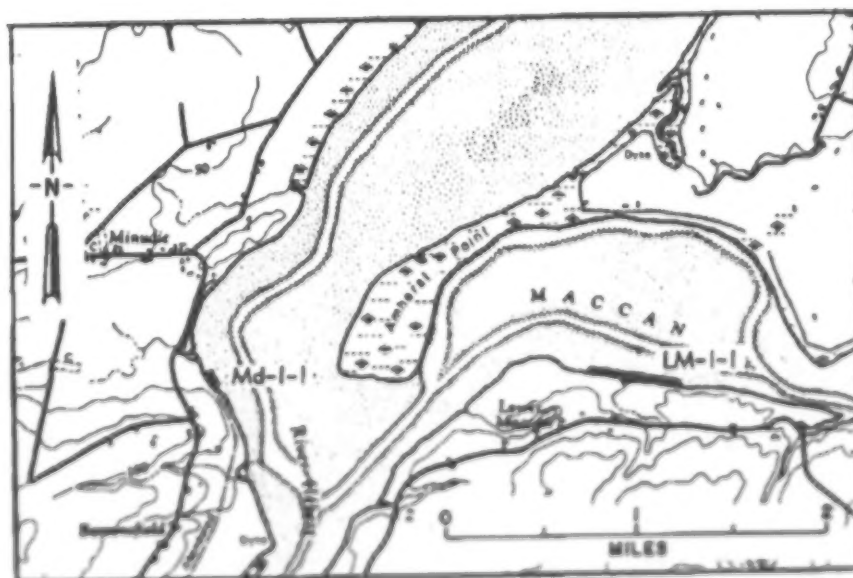


Plate 40. Sunnybrae, Pictou County. Limestone shows large ripple marks on the individual layers. (Sb-1-2)



Ref. Map 11-E-7-E

Figure 13



Ref. Map 21-H-16-W

Figure 14

CHAPTER V

CUMBERLAND COUNTY

General Geology

Cumberland County is largely underlain by Pennsylvanian sediments of freshwater origin, but at, or near, the southern border of the county there is a belt of volcanic and intrusive rocks and altered sediments. They form an elongated upland (the Cobequid upland), nearly 100 miles long, averaging about 900 feet above sea-level, and trending north 80° east.

The Carboniferous unmetamorphosed sediments lying north of the Cobequid upland, form the bedrock of an undulating lowland, averaging about 200 feet above sea-level, that extends from Cumberland County westward beneath the Bay of Fundy, northward into New Brunswick, and eastward into Pictou County and under the Northumberland Strait (Bell, 1944).

The Windsor Group, containing the only economic limestones and dolomites, occurs as thin bands running through the middle of the County from the Cumberland Basin on the west to Wallace on the east. There is also a narrow band of Windsor rocks in the Parrsboro area. The limestone is not very abundant in these areas and very few deposits appear to be very extensive.

AMHERST AREA

AMHERST (1-1)

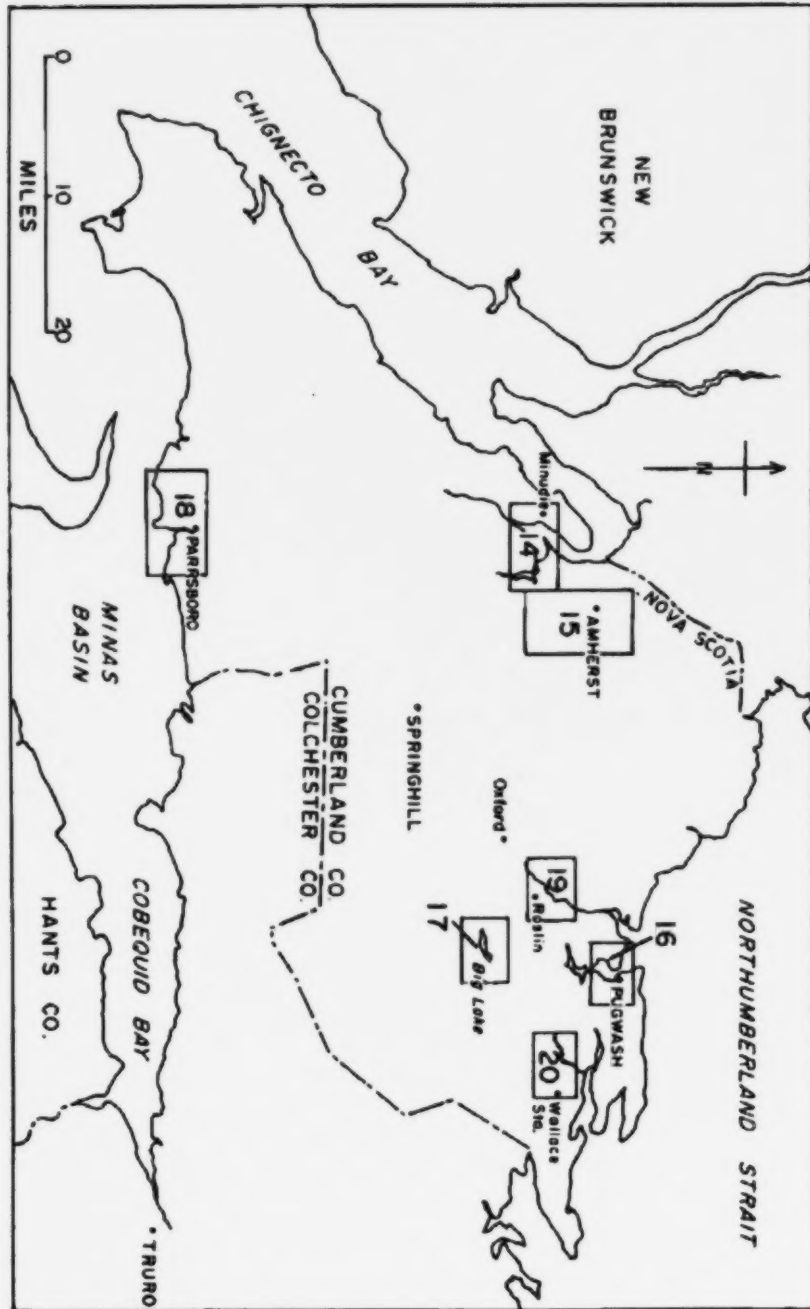
This occurrence is located in a quarry on the Lime-kiln Brook (Plate 41), approximately 3 miles southeast of the town of Amherst. The quarry is located 1.5 miles due east of the Amherst-Springhill highway. The quarry can be reached by an old road which serviced the quarry and is still passable. The quarry is 1.1 miles up this road from the turn off on the Upper Nappan-Brookdale road. (See Figure 15, page 82).

Description

It is a grey, hard, dense, medium-grained, massive, fossiliferous, dolomitic, Windsor limestone. The weathered surface is light brown. In some sections the bedding is poorly developed and massive, in others, the limestone is thinly bedded and well developed. There are a few oncolitic and nodular sections in the limestone. There are very few calcite veins. This occurrence strikes N 62° W and dips 57° NE.

The limestone is 50 to 60 feet thick. A large amount of limestone has been taken out of the quarry along strike.

The surrounding area is heavily wooded but is readily accessible.



Key Map 2. Location of Figures 14-20 inclusive, in Cumberland County.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Am-1-1	39.86	10.10	4.28	33.10	12.30

AMHERST (1-2)

This limestone outcrop is a continuation of occurrence Am-1-1. It can be found outcropping in a 30 foot embankment along the side of the Lime-kiln Brook, 4,686 feet upstream from the lime quarry. The limestone forms the bank of the brook with a dip of 69° NW. (See Figure 15, page 82).

Description

This limestone is greyish brown, hard, slightly conglomeratic, coarse-grained at the top of the section grading into a grey, hard, dense, fine-grained, oncolitic, Windsor limestone. The bedding is well developed with a brown, nodular weathered surface. There are no visible calcite veins. The limestone is striking N 60° E and dipping 69° NW.

The limestone dips into the brook at this point, parallel to the brook, so that no thickness can be seen. It is assumed, however, to be the same section as that found in the quarry which is 50 to 60 feet thick.

The surrounding area is heavily wooded and is not readily accessible.

Analysis

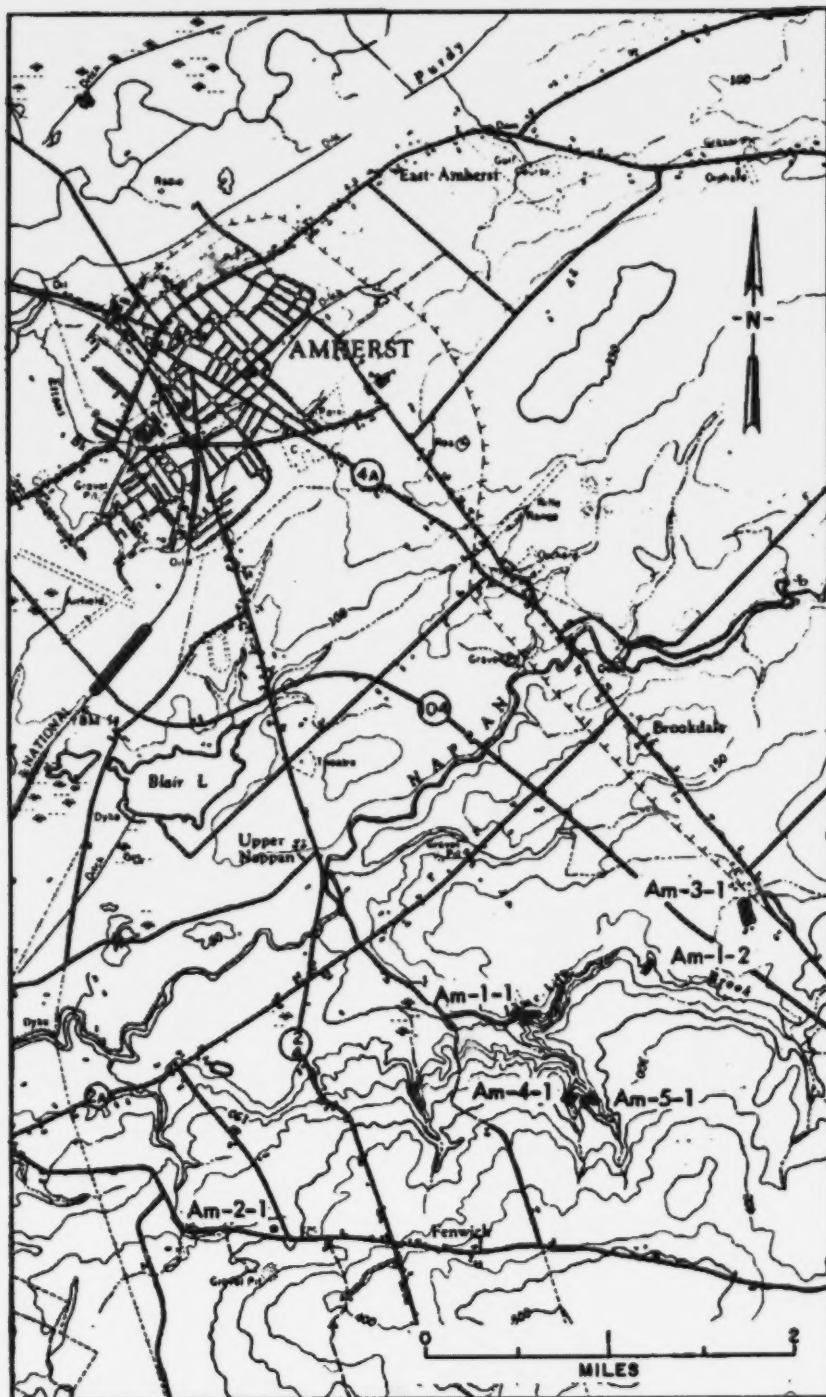
Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Am-1-2	36.30	13.50	4.40	44.80	0.85

AMHERST (2-1)

This occurrence of dolomite is located approximately 3 1/2 miles south of the town of Amherst. This dolomite outcrops at the south end of the Higgs Road, 1/2 mile west of the intersection at Fenwick on the Amherst-Springhill highway. The outcrop is located in a field, 60 feet west of the Higgs Road. The outcrop covers an area of approximately 100 square feet and stands 4 feet higher than the surrounding terrain. This is the only dolomite visible in the area. (See Figure 15, page 82).

Description

It is a greyish brown, hard, dense, granular, massive, slightly fossiliferous, Windsor dolomite. The bedding is very poorly developed with a light brown weathered surface. It contains a few cavities. The dolomite appears to strike in a



Ref. Map 21-H-16-E

Figure 15

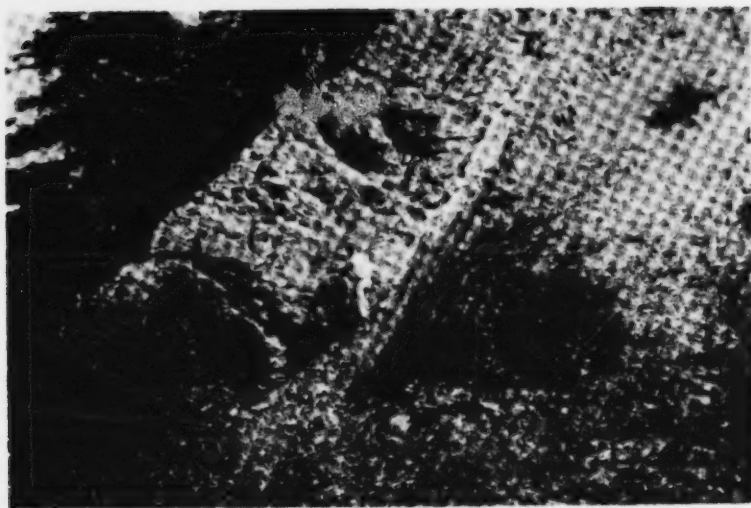


Plate 41. Limestone quarry located 3 miles south of Amherst on the east side of the Amherst-Springhill highway at Fenwick, Cumberland County. (Am-1-1)



Plate 42. Outcrop of limestone found in the intertidal area along the Maccan River at Lower Maccan, Cumberland County. (LM-1-1)

northerly direction and dips towards the west, but because of its massive nature the attitude is difficult to measure.

There is no indication as to the thickness of the dolomite. The overburden does not appear to be of any great thickness.

The surrounding area is flat and open farmland.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Am-2-1	44.10	4.90	3.08	29.10	18.30

AMHERST (3-1)

This occurrence is located on the west side of the Oxford-Amherst highway, 3 miles south of Amherst. This limestone is found outcropping in a quarry behind the farm of F. Crawford Kinnear. The limestone can be found on the west side of the road in a mound which parallels this road. The quarry is marked on the topographic map of the area. A manganese pit was dug at one time behind the Kinnear farmhouse. (See Figure 15, page 82).

Description

It is a grey, hard, fine-grained, slightly metamorphosed Windsor limestone. Certain sections of the limestone are nodular (oncolitic) and contain small patches of white barite and calcite. The bedding is very poorly developed and is mainly massive with a light grey, rough weathered surface. There are numerous faults in this area. The limestone is interlayered with a red sandstone and conglomerate, 2 to 3 feet in thickness. The limestone, generally, is very impure. In the quarry the limestone is striking N 12° E and is dipping approximately 80° NW. In the mound to the north of the farmhouse, the limestone appears to strike north or slightly northwest. The section would appear to be at least 50 feet thick with very little overburden.

The limestone is in faulted contact with the Pictou Group, the Boss Point Formation and the Canso Group.

The surrounding area is open and readily accessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Am-3-1	42.40	2.59	1.06	53.70	0.73

AMHERST (4-1)

This occurrence of impure dolomite is located on a brook which runs north and joins the Lime-kiln Brook just west of the limestone quarry (Am-1-1) located on the Lime-kiln Brook. The limestone can be found outcropping on the west branch of this small brook, 430 feet upstream from where the east branch joins. This area is approximately 1 mile east of the Amherst-Springhill highway and 1.7 miles southeast of Upper Nappan. (See Figure 15, page 82).

Description

It is a brown, hard, slightly porous, massive, medium-grained, Windsor dolomite. The weathered surface is smooth and brown with poorly developed bedding. This dolomite contains some fossils, essentially crinoid stems. Some sections of the dolomite are very hard and compact. It appears to strike N 38° W, but because of the limited outcrop area, the dip could not be measured. It seems, however, to be steeply dipping towards the southwest.

The dolomite strikes across the brook in a 30 foot high mound with very little overburden covering it. The dolomite is, however, overlain by a red and grey conglomerate. The limestone is 15 to 20 feet thick.

The area is very heavily wooded and is not easily accessible.

Analysis

Sample	L.O.I.(%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
Am-4-1	40.75	10.20	5.75	27.30	15.20

AMHERST (5-1)

This occurrence is found on the east branch of the brook which runs into the Lime-kiln Brook just west of the limestone quarry (Am-1-1). This limestone is east of Am-4-1 and 1,200 feet upstream from where the east and west branches of the brook join. The limestone is found in both banks and also in the brook. The limestone can be found outcropping up the east bank for a distance of almost 75 feet. The bank rises up from the brook for a distance of almost 75 feet. The bank rises up from the brook for a distance of approximately 150 feet on both sides. (See Figure 15, page 82).

Description

It is a light grey, hard, dense, fine-grained, compact, nodular, Windsor limestone. The weathered surface is light grey and nodular with very poorly developed bedding. There is very little indication as to the strike and dip because of the massive nature of the limestone, but it appears to strike in a northeasterly direction and dip towards the southwest. The limestone would appear to be fairly thick with no indication as to the thickness of the overburden.

The surrounding area is very hilly, heavily wooded and very inaccessible.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Am-5-1	41.70	3.49	1.59	52.80	0.57

BIG LAKE AREA

BIG LAKE (1-1)

This occurrence of siliceous limestone is located approximately 1 mile north of Big Lake and on the south side of the brook which drains McPherson Lake. The limestone is located in the brook and in a mound 980 feet up this brook from where it joins the Pugwash River and flows north. The limestone also outcrops near the top of a 35 foot high hill which runs along the south side of the Brook. (See Figure 17, page 87).

Description

It is a grey, hard, slightly porous, siliceous, medium-grained, Windsor limestone. It contains worm burrows which are one-quarter to one-half an inch in diameter. The bedding is well developed with a smooth, grey weathered surface. The limestone is thinly bedded in sections and slightly nodular in other sections. It strikes N 35° W and dips 54° NE.

There is no indication as to the thickness of the limestone because of the small areal extent of the outcrop. There appears to be very little overburden.

The area is very heavily wooded and not easily accessible. It is at least 3/4 mile from the nearest road.

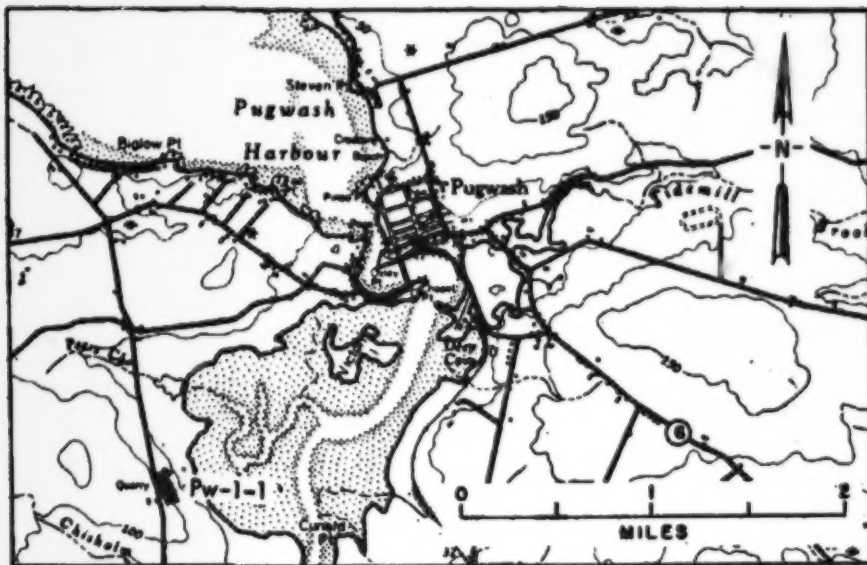
Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
BL-1-1	30.30	22.99	8.75	33.15	3.13

LOWER MACCAN AREA

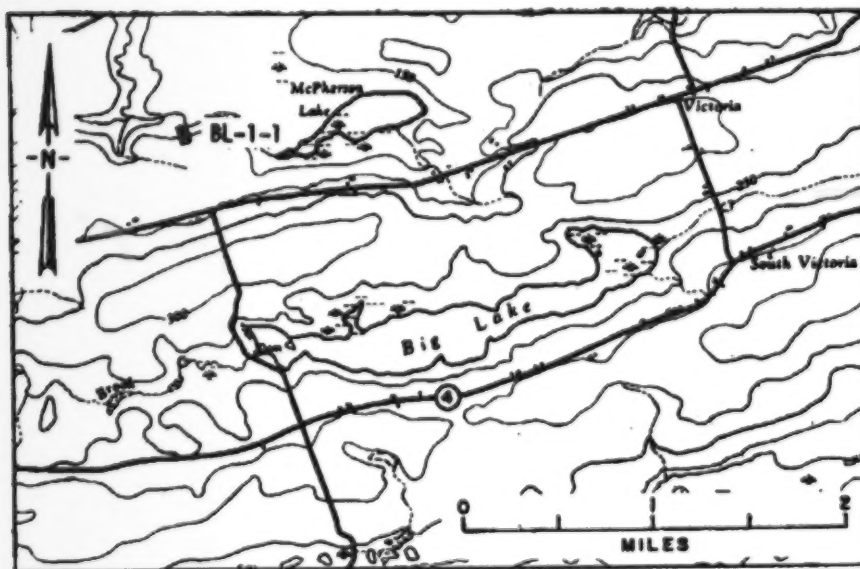
LOWER MACCAN (1-1)

This occurrence is located at Lower Maccan along the south shore of the Maccan River, 1.3 miles east of Amherst Point where the River Hebert joins the Maccan River. The limestone outcrops along the shore northeast of the school, at the mouth of a small brook which crosses the road at Lower Maccan. The main part of the outcrop is below high tide level but is above low tide level



Ref. Map II-E-13-E

Figure 16



Ref. Map II-E-12-E

Figure 17

(Plate 42). The limestone also outcrops in a 6 to 10 foot embankment along the edge of the shore. The strike of the limestone parallels the shore and dips inland under mainly open fields. This occurrence would appear to be a continuation of Md-1-1. (See Figure 14, page 77).

Description

It is, for the most part, a grey, hard, petroliferous, fine-grained, oncolitic, fossiliferous, magnesium, Windsor limestone. The limestone grades from a hard, yellowish green section near the bottom into an oncolitic section, into a large nodular section (Plate 44), into a fossiliferous section and finally into a thickly bedded section at the top (Plate 43). The fossils are mainly brachiopods with numerous worm burrows. There are numerous calcite veins. The bedding is well developed with a light grey weathered surface. It strikes N 70° W and dips 21° SW.

The limestone can be traced for approximately one mile along the shore, mainly to the east of the mouth of the small brook. The limestone is 30 to 40 feet thick with a possibility of large amounts of overburden inland.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
LM-1-1	41.10	5.60	3.60	42.00	5.90

MINUDIE AREA

MINUDIE (1-1)

This occurrence is located along the west shore of Minudie where the Maccan River and the River Hebert join and flow into the Cumberland Basin. The outcrop area is due west of Amherst Point and is 3/4 of a mile southeast of Minudie. The limestone outcrops along the shore, both above and below high tide level. The main outcrop is below high tide level and just above low tide level. (See Figure 14, page 77).

Description

It is a dark grey, hard, dense, fine-grained, oncolitic, Windsor limestone. The basal section ranges from an oncolitic limestone up to a semi-laminated limestone and then into a massive limestone with the upper section of the limestone being clayey and nodular. The limestone gives off a bituminous odor. There are a few calcite veins along fractures. The bedding is well developed with a light grey weathered surface. Due to the folding, the strike and dip vary somewhat, but generally it strikes N 85° E and dips 21° SE.



Plate 43. Outcrop of flat lying limestone found along the shore of the Maccan River at Lower Maccan River, Cumberland County. (LM-1-1)

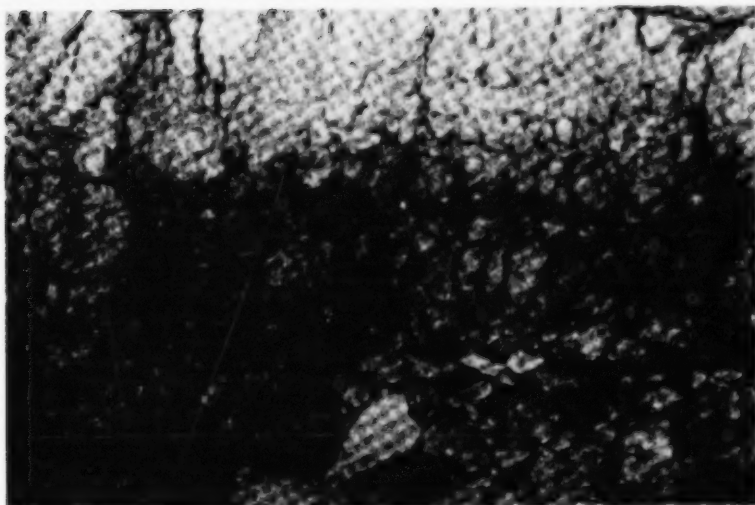


Plate 44. Same location as above showing nodular nature of the limestone at Lower Maccan, Cumberland County. (LM-1-1)

The limestone is at least 20 to 30 feet thick. There is very little overburden in the vicinity of the shore, however, inland it appears to increase.

The limestone is overlain by an arkose of Canso age.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Md-1-1	39.60	6.20	2.72	49.20	0.48

PARRSBORO AREA

PARRSBORO (1-1)

This occurrence is located along the shore of the Minas Basin approximately 4 miles southeast of the Town of Parrsboro. The occurrence can be found outcropping at Clark Head which is at Greenhill. The limestone is found in a 75 to 100 foot high cliff and forms the bank at this point. (See Figure 18, page 91).

Description

It ranges from a greyish black, hard, dense, argillaceous, well-bedded limestone to a massive, light grey very, hard, compact, Windsor limestone. There are numerous veins and stringers of pink and white calcite. The veins and stringers generally cut across the bedding but some run parallel to it. Others are very irregular. The limestone has been altered a great deal due to mafic intrusions in the area. It strikes N 70° W and dips 66° SW. The limestone is underlain by a light brown, arenaceous argillite.

The limestone is 40 to 50 feet thick in a few sections but generally is quite a bit thinner than this due to the extensive weathering along the shore of the Minas Basin. There is no overburden.

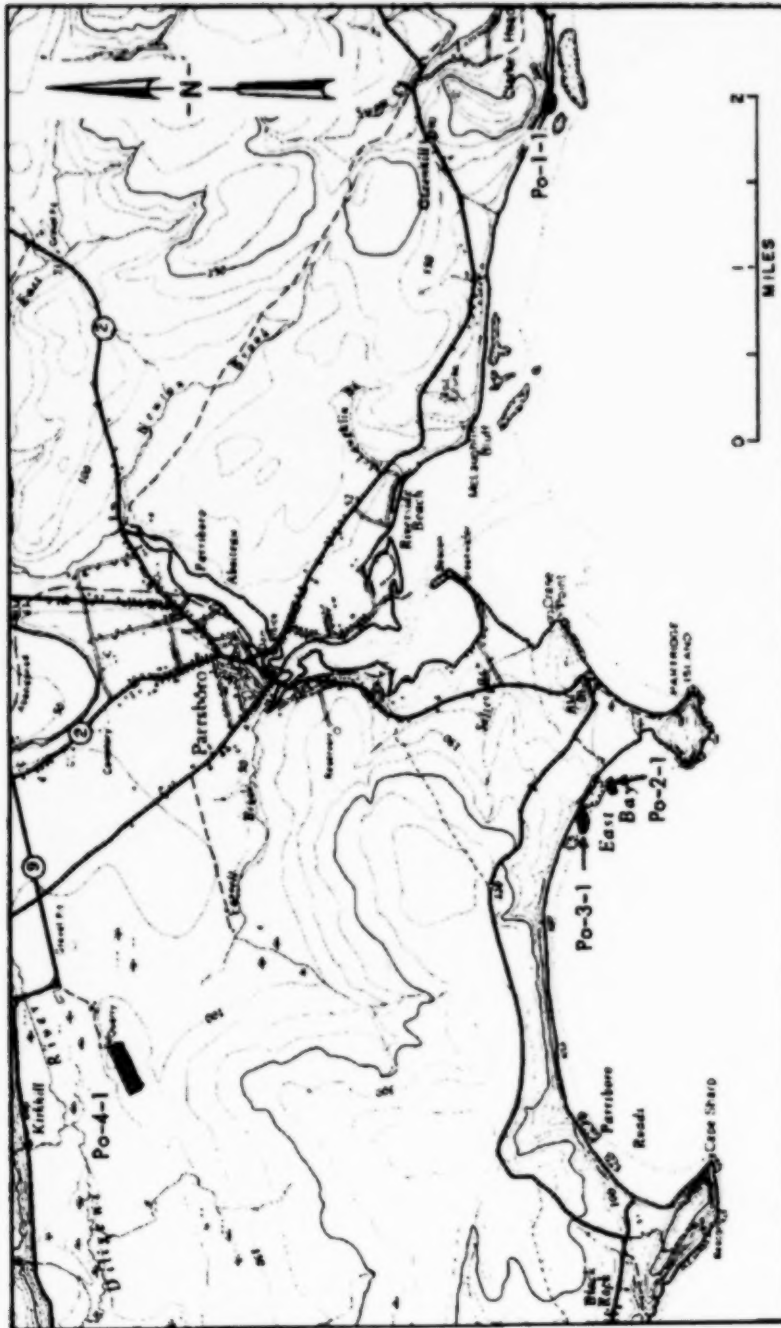
The limestone can be traced along the shore for a distance of 150 feet (along strike).

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Po-1-1	41.85	2.80	1.88	51.70	1.44

PARRSBORO (2-1)

This occurrence is located approximately 2 miles south of the town of Parrsboro. The limestone can be found outcropping 15 to 20 feet in elevation below high tide level on the shores of East



Ref. Map 21-H-8-W

Figure 18

Bay, 0.5 miles northwest of Partridge Island. The limestone out-crops one-half mile west of Ottawa House. The limestone strikes away from the water and back towards the cliff but does not outcrop inland. (See Figure 18, page 91).

Description

It is a dark grey, hard, dense, argillaceous, siliceous, medium-grained, Windsor limestone. The bedding is well developed with a grey, smooth weathered surface and it strikes N 79° E and dips 36° NW. There are numerous calcite stringers and a few fossils (small worm burrows?).

The limestone is at least 15 feet thick but the entire thickness cannot be seen. A large amount of overburden is present inland, making the limestone of very little economic value.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Po-2-1	37.45	11.70	2.95	44.75	1.89

PARRSBORO (3-1)

This occurrence is located 660 feet northwest of Po2-1 along the shore of the Minas Basin (Plate 45). This impure limestone can be found striking away from the water and back into the embankment. The limestone can also be found outcropping 10 to 15 feet in elevation below high tide level. The limestone appears to be faulted off where it joins the embankment. A small brook has cut down through it and the limestone cannot be found on the other side of the brook. (See Figure 18, page 91).

Description

It is a dark grey, hard, medium-grained, highly argillaceous, siliceous, fossiliferous, Windsor limestone. The bedding is very well developed with a light grey, smooth weathered surface and strikes N 65° E and dips 65° NW (Plate 46). The fossils are abundant with the majority being brachiopods, both large and small. There are also a few gastropods and some long thin rounded structures (worm burrows?). There are a few irregular calcite stringers. Joints and fractures are abundant in the limestone.

The limestone is 30 to 40 feet thick with some interbedded bands of limy shale.

The entire limestone section can be seen along the shore.



Plate 45. Steeply dipping limestone found along the shore of East Bay, 2 miles southwest of Parrsboro, Cumberland County. (Po-3-1)

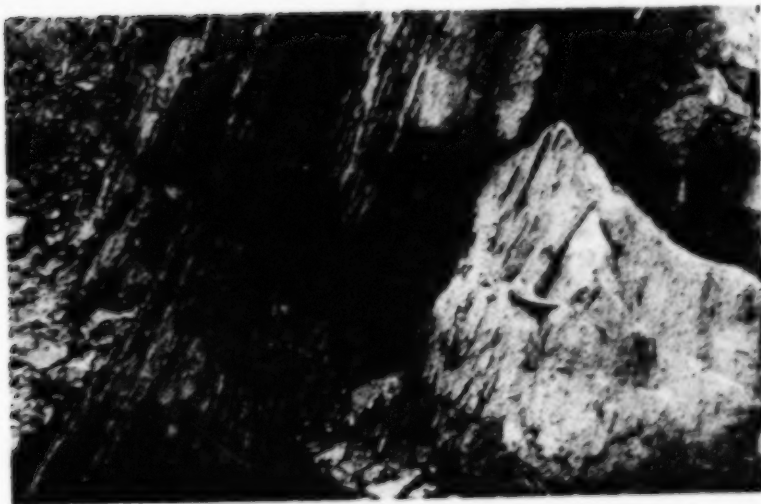


Plate 46. Close-up of the above outcrop showing the thin bedding of the limestone at the top of the section. (Po-3-1)

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Po-3-1	28.90	26.40	10.30	28.90	4.50

PARRSBORO (4-1)

This occurrence of limestone is located 2.2 miles north-west of town the of Parrsboro, at Kirkhill. The limestone can be found outcropping in the floor of an old lime quarry. The quarry has not been used for many years and is now being used as a dump for old cars. The limestone occurs as rubble along the side of the quarry. This quarry is 0.2 miles west of the farmhouse which is just south of the quarry. This quarry is 0.2 miles west of the farmhouse which is just south of the Department of Highways shed. (See Figure 18, page 91).

Description

It is a dark grey, hard, dense, slightly laminated, Windsor limestone. The bedding is well developed with a buff coloured and smooth weathered surface. There are numerous small calcite stringers and veins running in all directions. There is some associated coal material. There is no indication as to the dip or strike due to the lack of outcrop in the area. Goudge (1934) states that the limestone has a nearly vertical dip, strikes east and is 50 feet thick.

There is not much overburden and the limestone can be traced west from the farmhouse for a distance of approximately 1,000 feet along the quarry road.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Po-4-1	42.05	2.49	1.50	52.60	0.55

PUGWASH AREA

PUGWASH (1-1)

This occurrence is located approximately 2 miles southwest of the town of Pugwash. The limestone is found in a quarry (Plate 47), east of the road running along the west side of the Pugwash River. This road runs from Pugwash to Conns Mills. The quarry is approximately 700 feet long and 40 feet wide. (See Figure 16, page 87).

Description

The limestone is hard, light grey, very compact, oncolitic, fine-grained, dolomitic, and belongs to the Windsor Group. The bedding is very well developed and is thickly bedded.

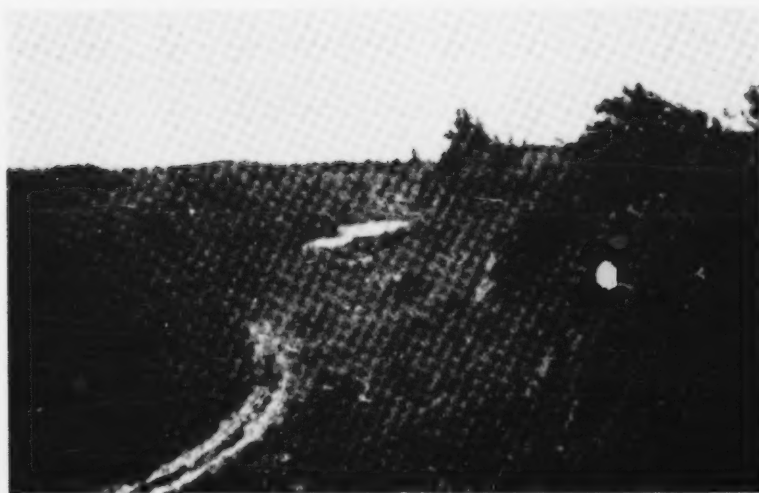


Plate 47. Limestone quarry located along the west side of the Pugwash River, 2 miles southwest of Pugwash, Cumberland County. (Pw-1-1)



Plate 48. Outcrop of limestone found in the above quarry showing algal "cigars" and steeply dipping strata. (Pw-1-1)

The weathered surface is light grey. There is a large amount of calcite along the bedding surface which shows slickensiding, indicating horizontal movement along the bedding plane. The limestone varies a great deal throughout its thickness. The lower portion of the limestone has a large amount of red siltstone associated with it, while the upper portion shows "algal cigars" (Plate 48). It strikes N 43° W and dips 76° NE. The limestone is underlain and overlain by a red siltstone with another thin layer of limestone overlying the upper siltstone.

The limestone is 30 to 35 feet thick with little or no overburden.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Pw-1-1	41.50	6.31	2.65	41.70	8.29

ROSLIN AREA

ROSLIN (1-1)

This occurrence is located 1800 feet upstream on the Plaster Creek from Route 21 at Roslin, located between Oxford and Pugwash. This dolomite is found in mounds trending N 65° W and standing 20 feet above the surrounding swampy land. The dolomite was quarried at one time but only on a small scale. There are several small ponds in the area which are probably sink holes. (See Figure 19, page 98).

Description

This is a brown, soft, slightly porous, medium-grained, fossiliferous, Windsor dolomite belonging to the B Subzone (Bell). The bedding is well developed with a light brown and smooth weathered surface. The dolomite is very fossiliferous containing brachiopods (most abundant), pelecypods and nautiloids. It also contains some cigar-shaped objects which may be filled in worm burrows. These are long and straight and do not appear to have any internal or external structure. The dolomite strikes N 80° W and dips 71° SW.

The dolomite would not appear to be greater than 20 feet thick with very little overburden. The mounds can be traced for a distance of 300 feet. There is no indication as to what is underlying or overlying the limestone although gypsum is found in this area. There are numerous sink holes up the brook from the outcrops.

The surrounding area is wooded and swampy.



Plate 49. Extremely fossiliferous Windsor dolomite found on the Plaster Brook which is 5 miles northeast of Oxford, Cumberland County. (Ro-1-1)

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Ro-1-1	39.70	11.45	8.15	26.50	14.20

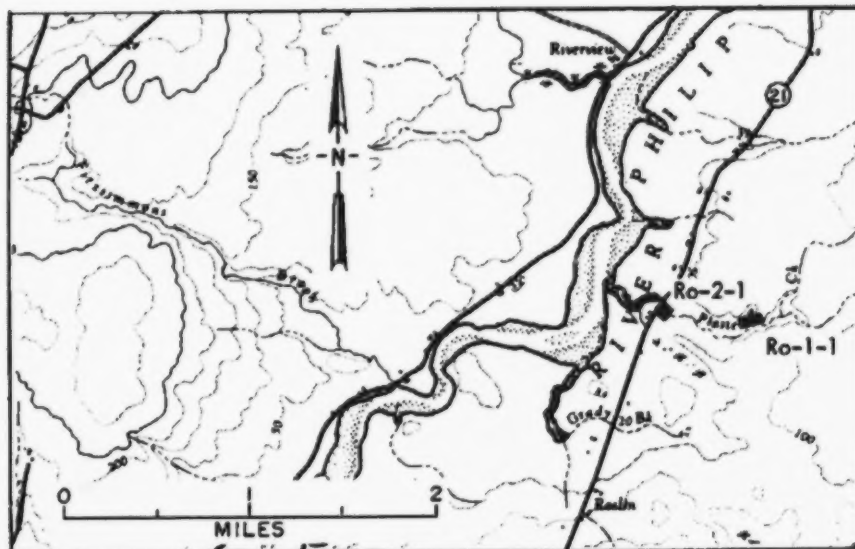
ROSLIN (2-1)

This occurrence of dolomite is located 50 feet south of the bridge on the Oxford-Pugwash Highway at Plaster Creek. The dolomite can be found outcropping in a mound on the south side of Plaster Creek and is probably a continuation of Ro-1-1. (See Figure 19, page 98).

Description

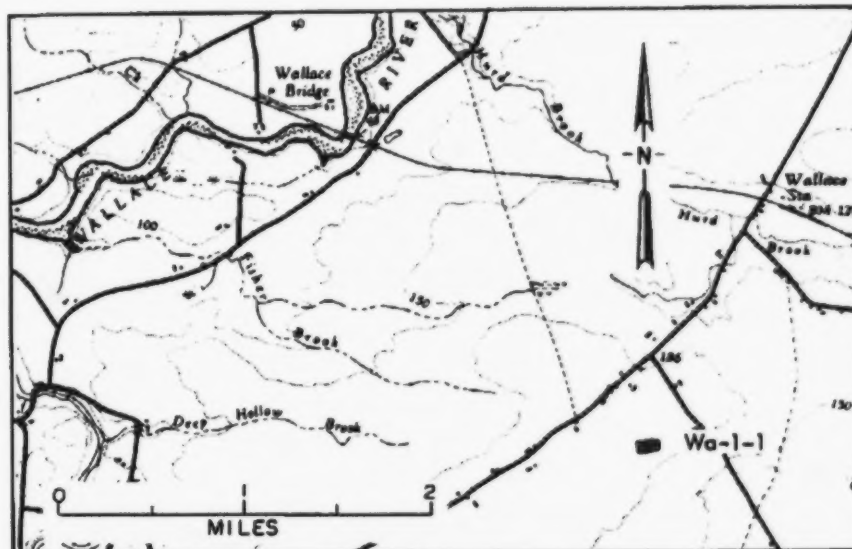
This is a dark brown, massive, hard, slightly porous, medium-grained, Windsor dolomite. The bedding is massive and very poorly developed with a dark brown, rough weathered surface. This dolomite appears to be striking in the same direction as Ro-1-1. This dolomite is less fossiliferous and contains a higher magnesium oxide value than Ro-1-1. The dolomite strikes N 40E W and dips approximately 80° NE.

The limestone is at least 12 feet thick with very little overburden. The dolomite appears to strike across the road but does not outcrop on the west side of the road, although there are numerous sink holes.



Ref. Map 11-E-13-W

Figure 19



Ref. Maps 11-E-13-E, 11-E-14-W

Figure 20

The surrounding area is mainly open farmland containing some sink holes.

This is a channel sample taken across the 12 feet of dolomite that is exposed.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Ro-2-1	45.75	2.21	2.39	29.65	19.85

WALLACE AREA

WALLACE (1-1)

This occurrence is located on the south side of the road running from Wallace to Wentworth. The limestone is found in a small quarry 0.4 miles south of the old schoolhouse which is 1.3 miles southwest of Wallace Station. The limestone is found as rubble in an old quarry but cannot be seen outcropping. It apparently had been worked in the early part of the 20th century. (See Figure 20, page 98).

Description

It is a light grey, very hard, compact, fine-grained, Windsor limestone. The weathered surface is yellowish brown and smooth. There is no visible outcrop in the area. The strike and dip could not be determined, but from information obtained from residents of the area and from old reports (Goudge, 1934), the limestone would appear to be flat lying and covering a wide area.

The thickness of the limestone could not be determined. The overburden would be between 5 and 10 feet thick (information obtained from farmers who drilled wells in the area).

The surrounding area is flat and heavily wooded. The quarry can be reached by an old logging road which is now impassable to vehicle traffic.

Analysis

Sample	L.O.I. (%)	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
Wa-1-1	40.60	5.01	1.51	51.75	0.53

CHAPTER VI

DIAMOND DRILLING

WILLIAMS POINT AREA

The Williams Point area is located 2 east of the town of Antigonish in Antigonish County (Figure 21). It forms a peninsula which juts out into the southern part of Antigonish Harbour. Geologically, this area comprises part of the central basin of Windsor marine sedimentary rocks in Antigonish County.

There are three definite areas of limestone with a small number of scattered outcrops exposed in this part of Antigonish County (Figure 22). Limestone can be found outcropping on all sides of and in places covering a granodiorite ridge which has a trend almost due north and south in the central part of this peninsula. At one point this ridge stands 250 feet above sea level and is the highest point of land in the area. The main body of limestone is exposed on the west side of the ridge (Figure 24). On the east side of the ridge the granodiorite drops off rather steeply, thus showing only a thin covering of limestone in places. Basal sections of the limestone contain large and small fragments of granodioritic material.

The limestone in this area ranges from light brown to dark grey in color, is hard, dense, massive and belongs to the B Subzone of the Windsor Group. Bedding is very poorly developed with the limestone appearing to dip at a low angle away from the granodiorite ridge on all sides. Various sections of the limestone are fossiliferous, while in other areas there is no evidence of fossil remains. Limestone of the latter type was formed mainly from algal material. Fossils observed include gastropods, pelecypods and brachiopods with some bryozoans. Very little argillaceous material is present in the exposed areas. The silica content is mainly due to fragments of granodiorite which were washed into the limestone during deposition. The greatest amount of granodiorite is found near the contact of the limestone with the granodiorite. Galena occurs in small blebs throughout this limestone.

Numerous gypsum sink holes are found at a lower elevation in the Williams Point area. This gypsum overlies the limestone stratigraphically, but nowhere can the contact between the gypsum and the limestone horizon be observed and measured.

The overburden at the base of the ridge is very thick with the cliff of limestone having a steeply dipping slope, probably due to weathering. The average depth of overburden cut by the holes drilled at the ridge is approximately 50 feet. This overburden consists mainly of reddish brown mud with a few limestone boulders.

Five holes were drilled during this examination in 1967 (Figure 21), all on the southwest side of the central ridge. The limestone in these holes ranges between 25 and 30 feet in thickness. Drilling was also carried out in this area in 1945, these holes showing an average limestone thickness approximately 40 feet along the western side of the central ridge.

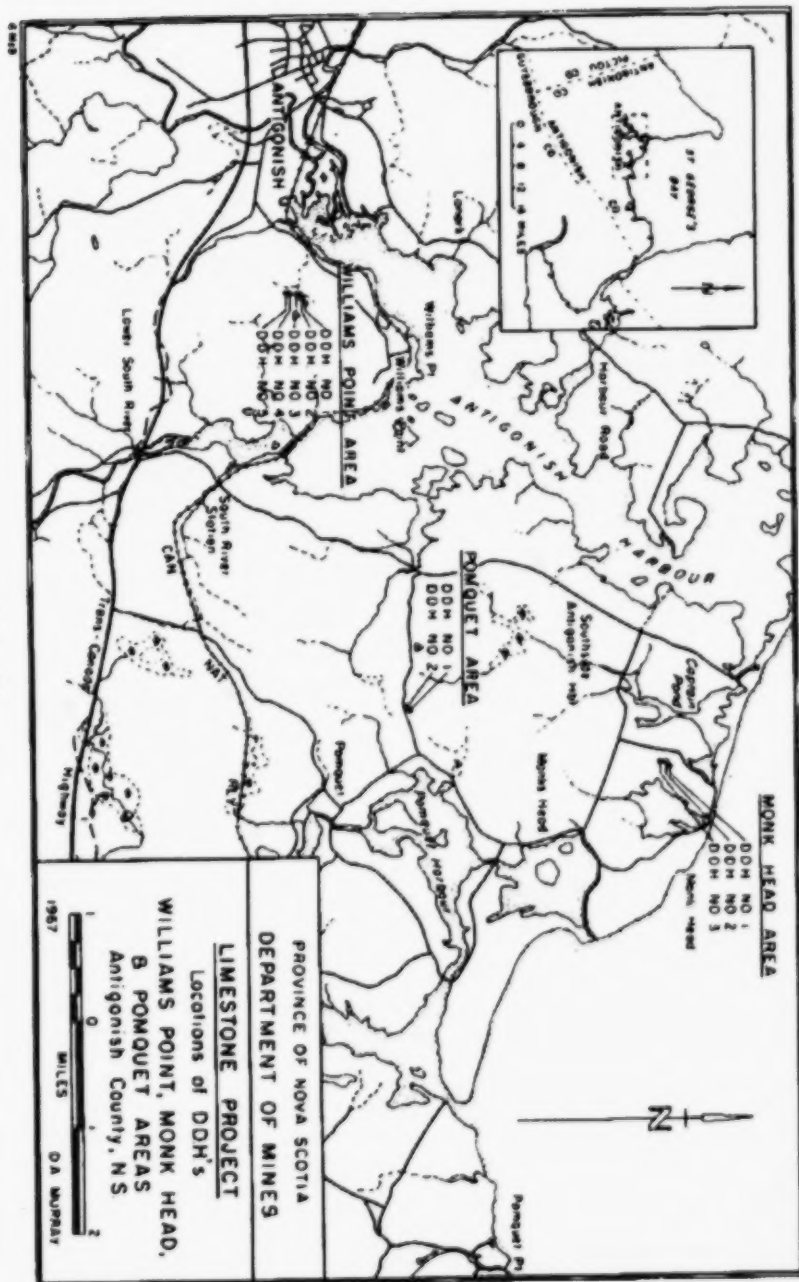


Figure 21

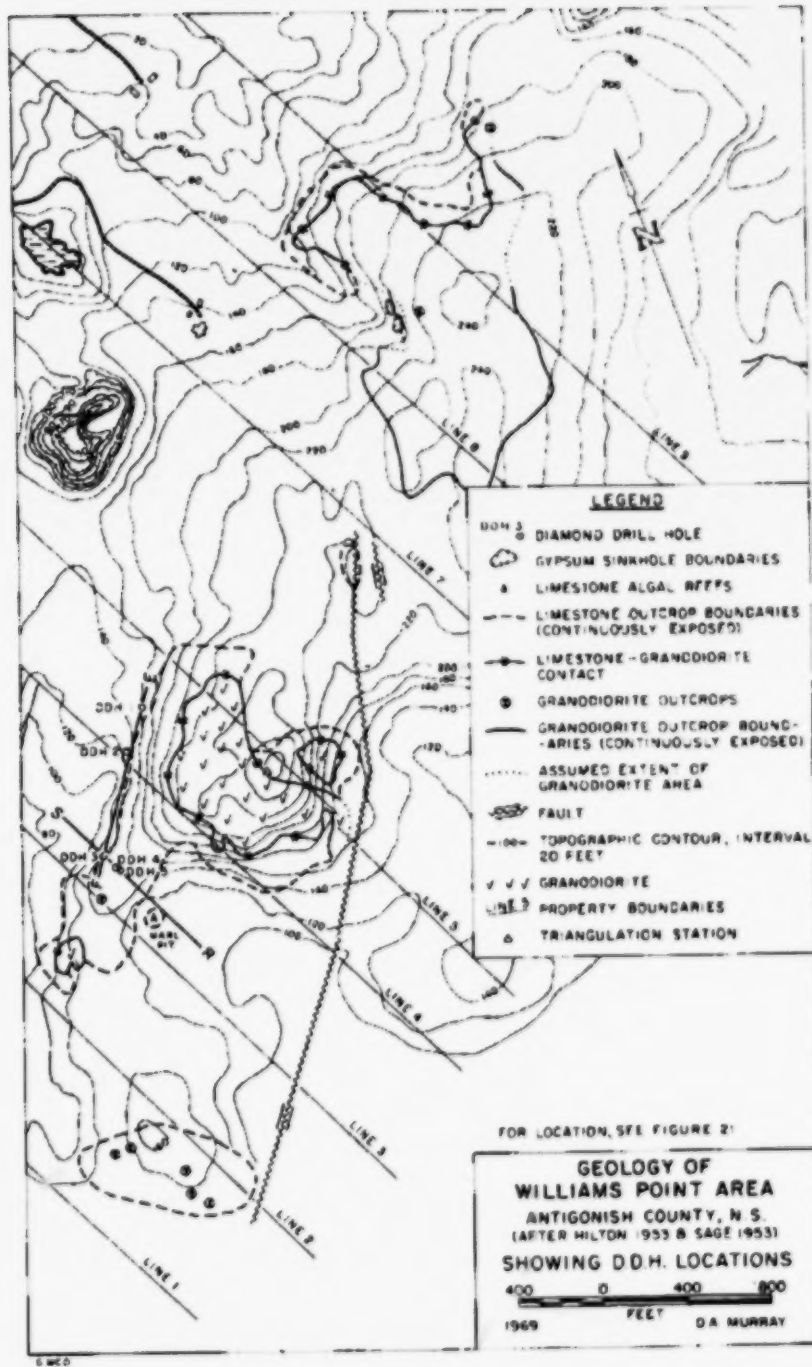


Figure 22

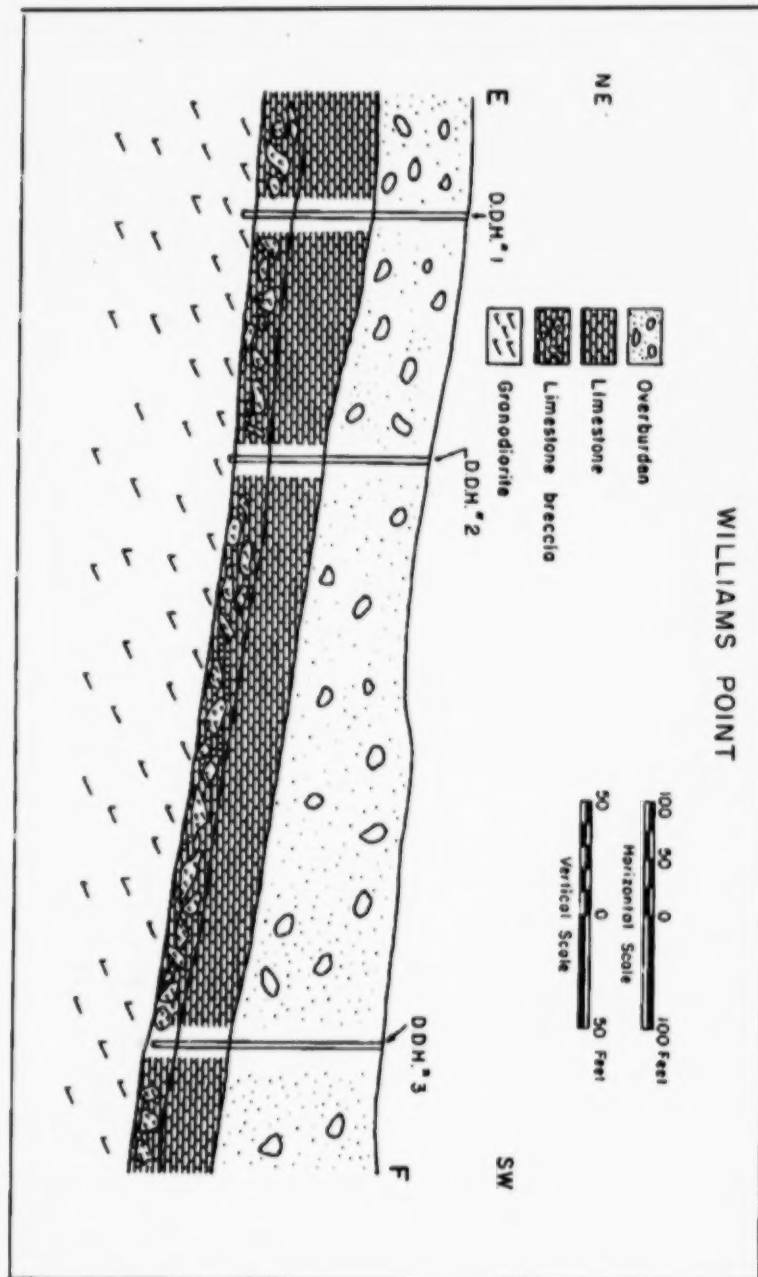


Figure 23

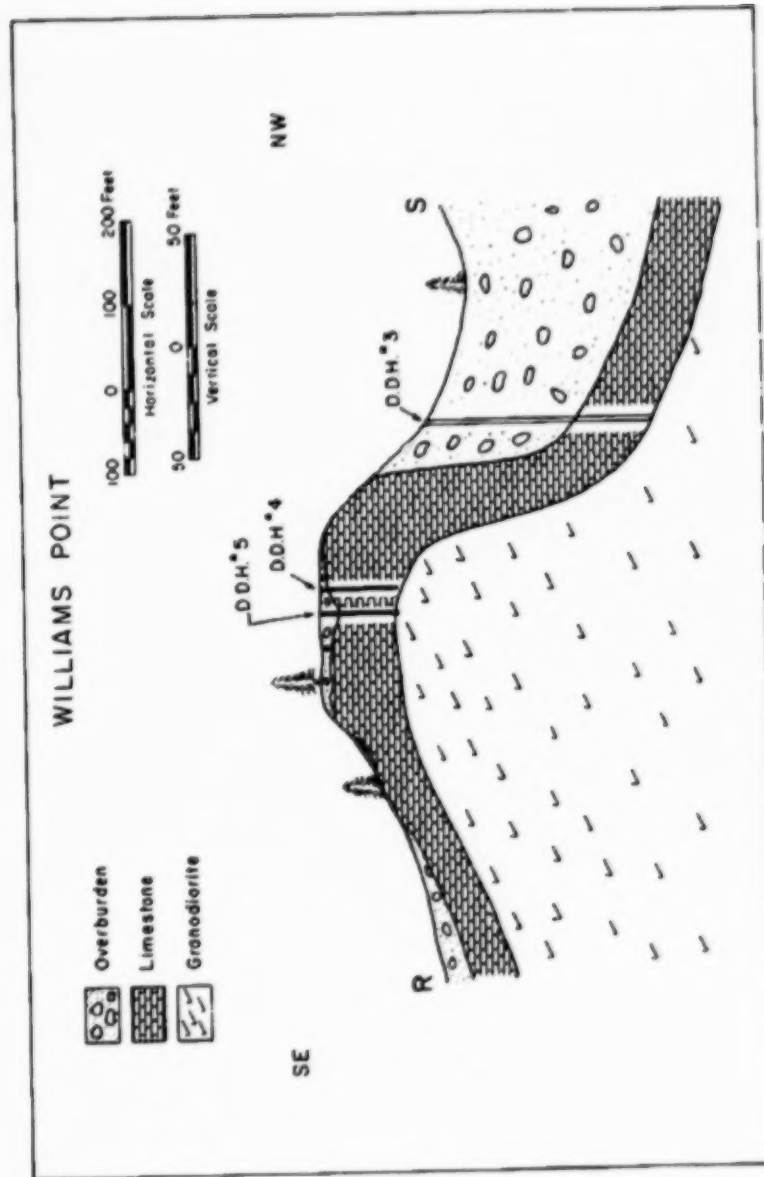
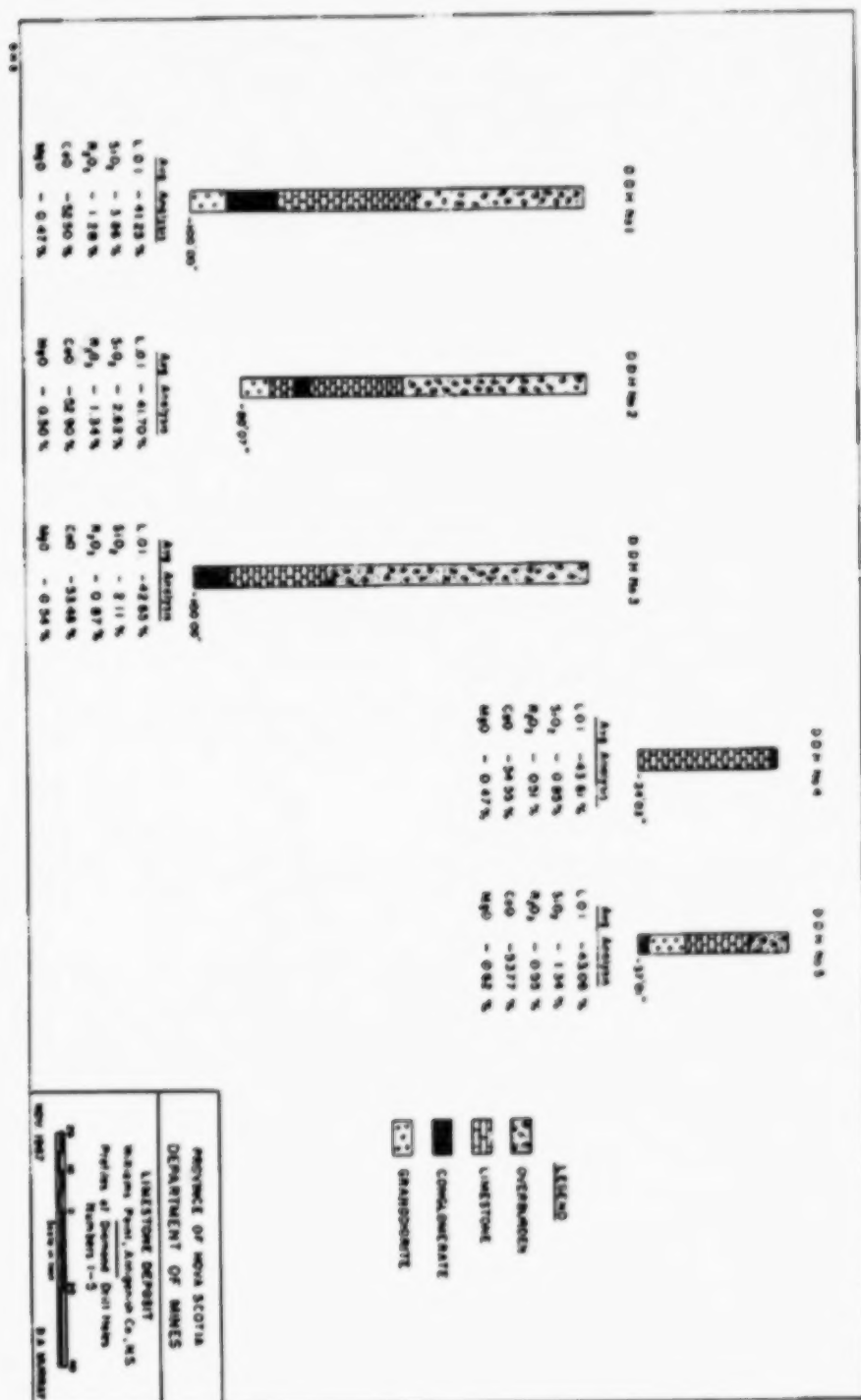


Figure 24



There are two other sections of limestone, one of which is found in the northern part of the area where it forms a very thin layer of material in place around the granodiorite mass (Figure 22). There is a small quarry in this locality showing a 15 foot section of limestone which could be considered as the maximum thickness of this quarry site.

In the southern part of the area there is an isolated patch or outlier of limestone separated from the two large deposits at Williams Point (Figure 22). Here also, the limestone forms only a thin layer over a zone of numerous granodiorite outcrops. The limestone appears to have a greater thickness along the slope of the hill, but this probably would not exceed 20 feet.

The limestone here at Williams Point could easily be quarried along the sides of the ridges with some 25,000 tons available. An additional 25,000 tons could probably be quarried at the base of the ridge, but a large amount of overburden would have to be removed.

The limestone is of good quality but the apparent tonnage is insufficient for any large scale operation.

MONKS HEAD AREA

This area is located 0.3 miles west of Monk Pond which is approximately 3 miles northwest of the village of Pomquet in Antigonish County. The area is two miles east of the mouth of Antigonish Harbour and 0.5 miles inland from the shore of St. Georges Bay (Figure 21).

The outcrop occurs as a mound of dolomitic limestone which stretches for 900 feet in a northeast-southwest direction. The mound reaches a maximum height of 25 feet above the surrounding area with a maximum width across the top of 40 feet (Figure 26).

Three holes were drilled in this deposit; hole #1 on the north end of the mound; hole #2 to the west of the mound and in the central part; and hole #3 on the southern part of the mound.

Hole #1 cut 112'10" of limestone which ranges from high calcium of dolomitic in composition. At an average dip of 36° this 112 foot section represents a true thickness of about 90 feet. It is brownish grey, hard, dense, and in some parts oolitic. Galena is found disseminated in minor amounts throughout. Red shale underlies this limestone.

Hole #2 was drilled to a depth of 35 feet and remained in overburden.

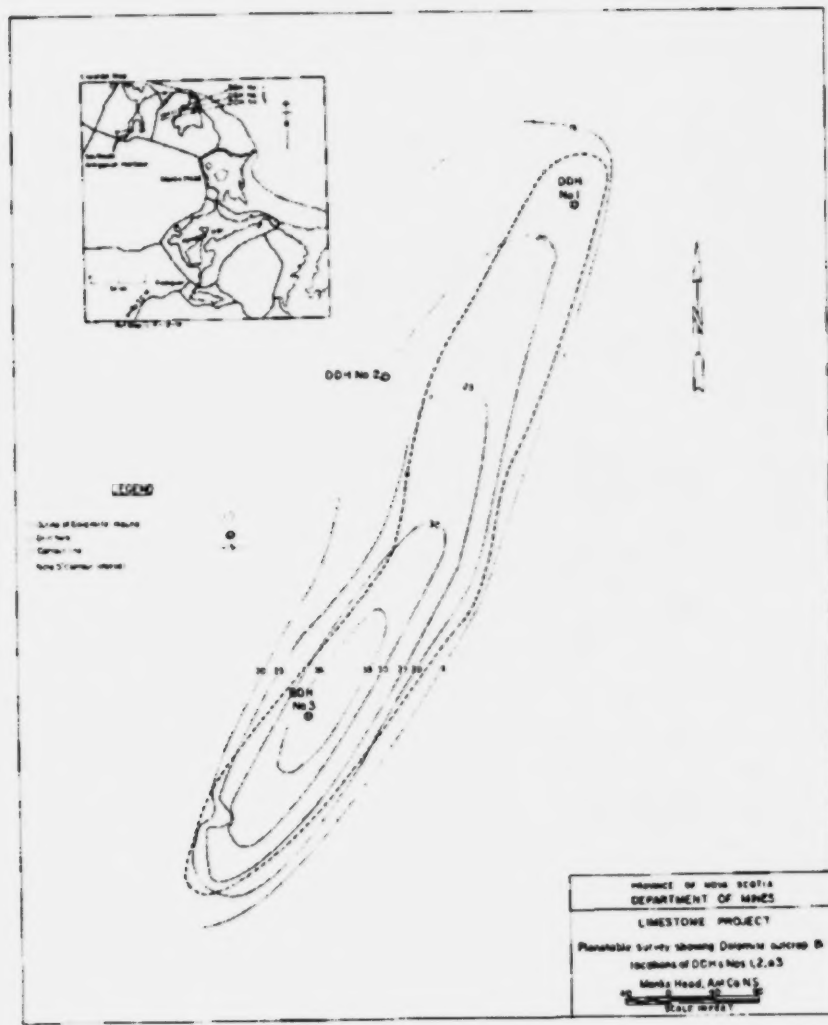


Figure 26

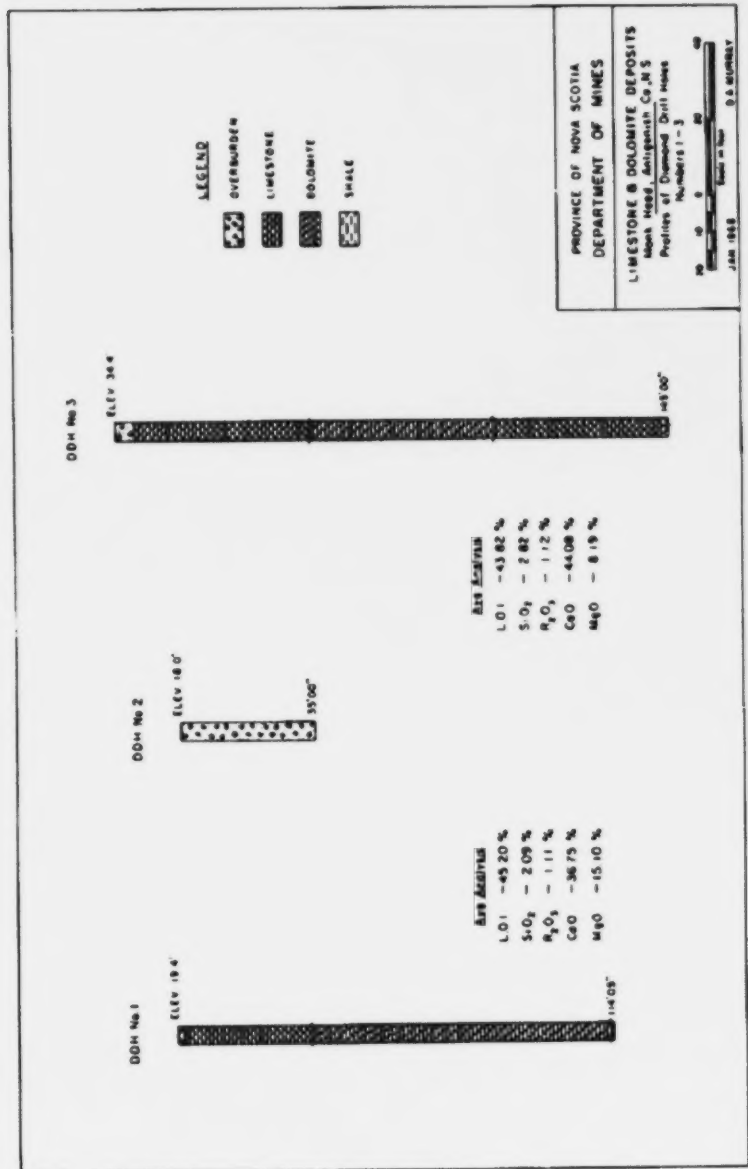


Figure 27

Hole #3 was drilled to a depth of 145 feet, 140 feet of which was in limestone. This limestone is hard, granular, medium-grained and grades from dolomitic limestone into a soft, porous dolomite. At 99 feet the dolomite grades into a coarse-grained, dolomitic, slightly fossiliferous, Windsor limestone. The hole continued in limestone to 145 feet but due to poor core recovery the hole was stopped. See Table 1 for results of drilling during 1967.

Further assessment programs would be required to substantiate the commercial significance of this area.

POMQUET AREA

This area is located approximately one mile northwest of Pomquet in Antigonish County. The deposit which was drilled is found just north of the road running between Pomquet and Southside Antigonish Harbour. The holes were drilled in the vicinity of an old saw mill (Figure 28).

This occurrence of dolomite can be traced for 1,200 feet, paralleling the road. The beds dip very steeply (63° SW) and form a mound which stands 20 to 30 feet above the surrounding area.

Two holes were drilled in this deposit approximately 200 feet apart. The first hole did not intersect the dolomite horizon. Hole #2 was drilled at an angle of -45° on a bearing of N 33° E to a depth of 94 feet with 68 feet of limestone and dolomite being encountered (Figure 29). The true thickness is 64 feet. If the deposit could be quarried to a depth of 50 feet, a maximum tonnage of 320,000 tons could be obtained.

Although the drilling results to date suggest that the value of the dolomite in the Pomquet area is questionable, it is possible that further exploration may outline limited areas with quality adequate to sustain production.

LIMEROCK AREA

This area is located just south of the school at Limerock, near West River, Pictou County.

The Windsor here shows up as a small fault block adjoining the Bass Point Formation (Riversdale Group) on the north and the Canso Group on the south (Gillis, 1964).

Four holes were drilled in this area with the idea of outlining the limestone. Of the four holes drilled, only two penetrated limestone (Figure 31).

The information obtained from the drill holes and the two outcrops in the area seem to show the limestone as a southeasterly plunging anticline with the limestone thickening to the north.

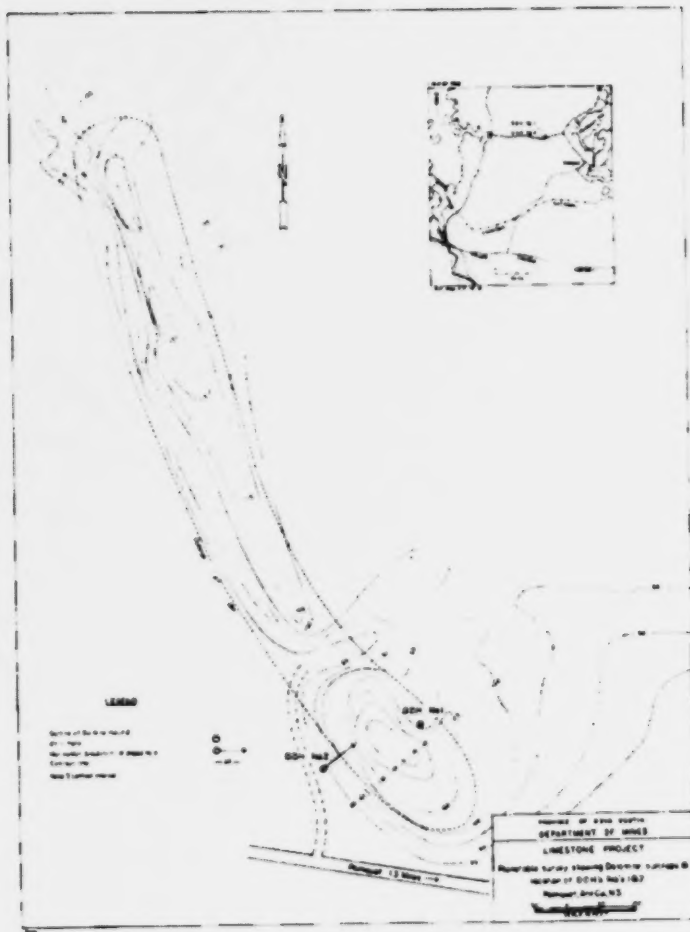


Figure 28

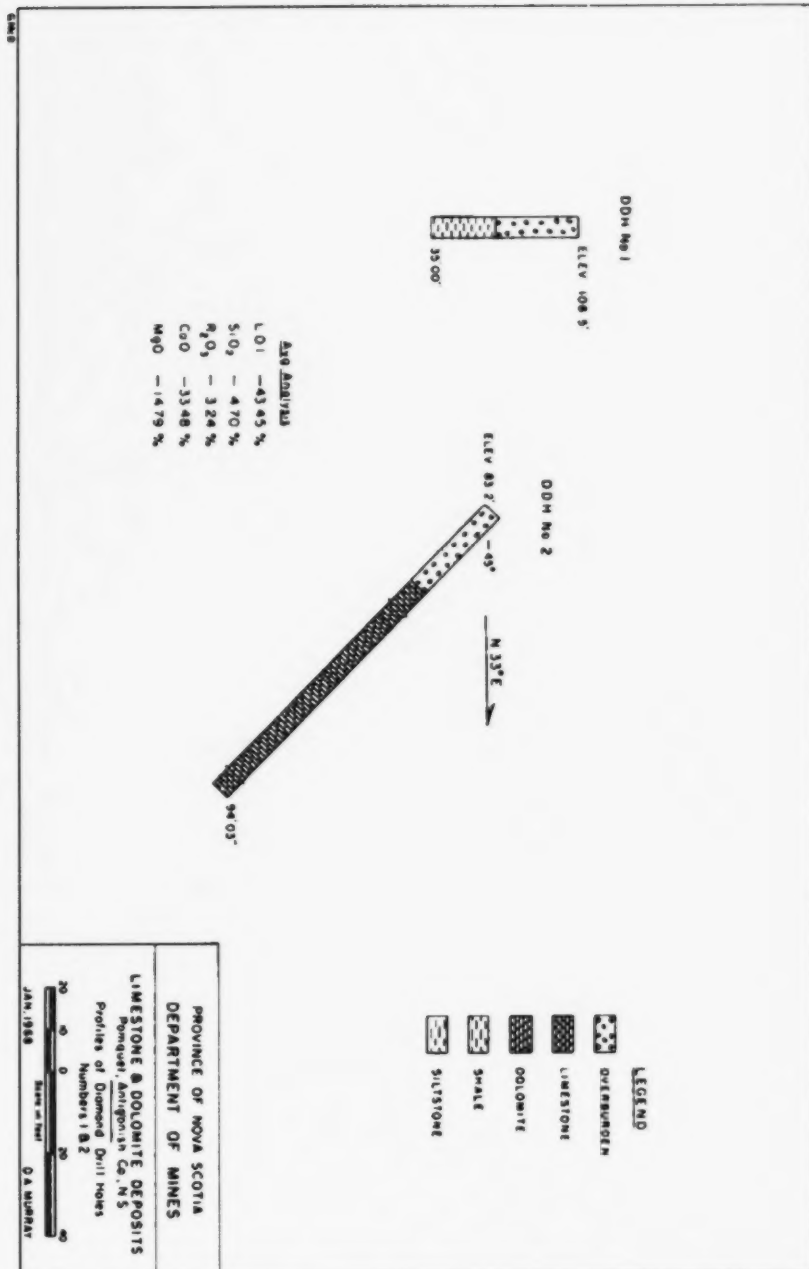


Figure 29

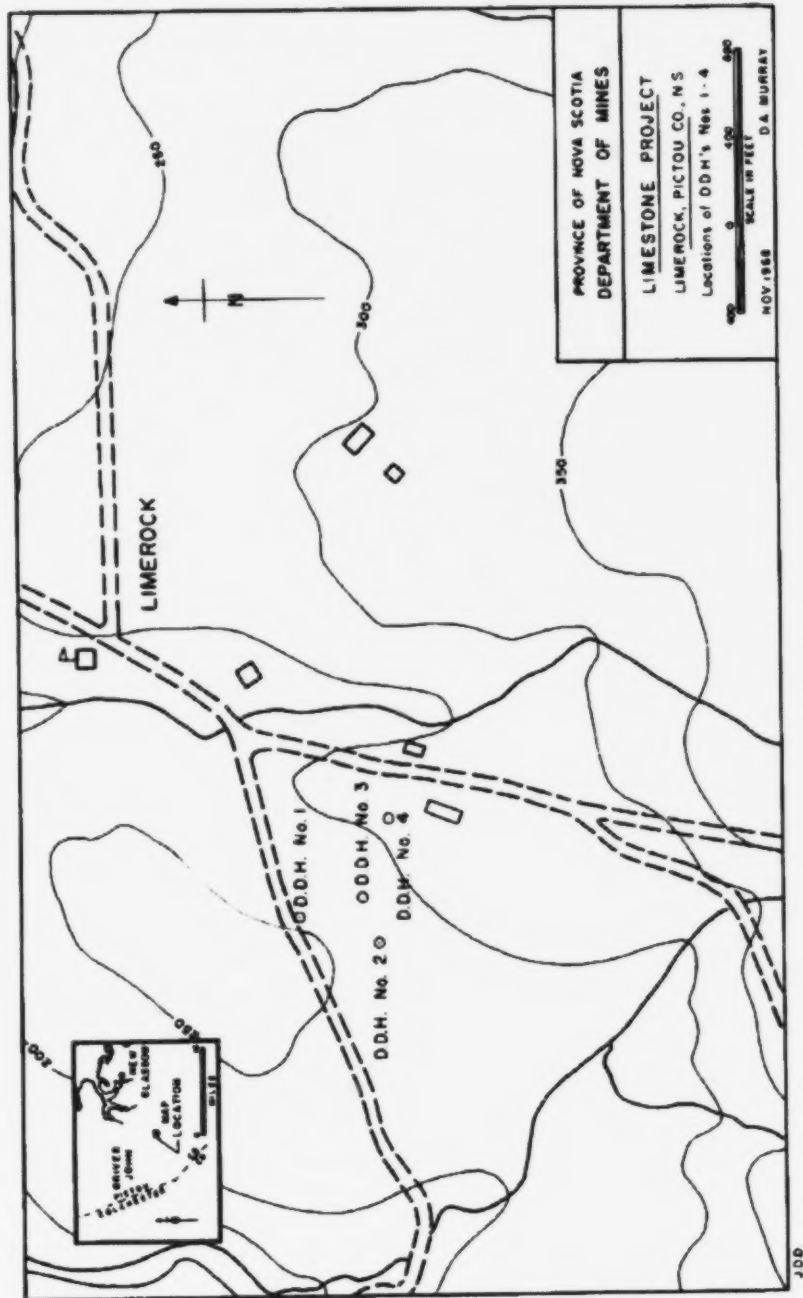
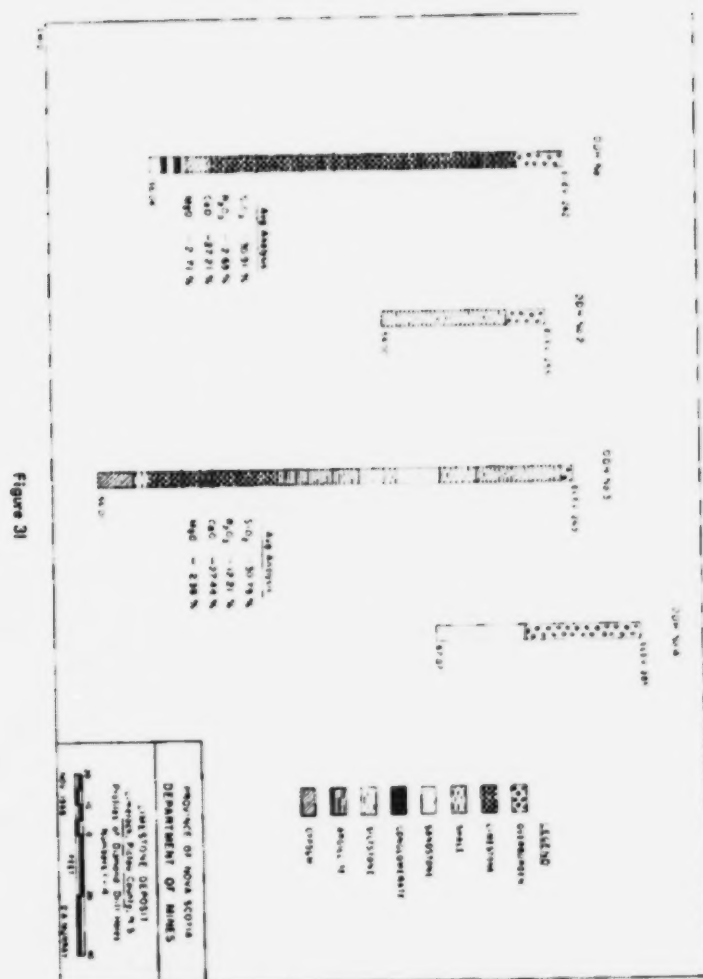


Figure 30



The limestone is dark grey, hard, highly siliceous and belongs to the B Subzone of the Windsor Group. The limestone penetrated in Holes 1 and 3 could be subdivided into 4 definite zones by using:

- (1)fossil content
- (2)presence of oncolites
- (3)alternating thin bands of limestone and dark argillaceous material, and
- (4)the abundance of pink and white calcite.

Although 100 feet of limestone was penetrated in Hole 1, the limestone would appear to be of no economic value because of the very high silica content which reaches 50% in some samples.

APPENDIX A

MONKS HEAD
(HUNTLEY BROPHY PROPERTY)
ANTIGONISH COUNTY

Hole No. 1
Ultimate Depth: 114'05"
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET		FORMATION
0'-1'07"	Overburden	
1'07"-34'05"	Limestone	(Windsor Group) Brownish grey, hard, dense, medium-grained, slightly dolomitic and oolitic. Contains galena at 5'05" and at various places throughout this portion. There are very few cavities. Yellow iron staining is found at various places throughout.
34'05"-113'09"	Limestone	(Windsor Group) Dolomitic, porous, brown, sugary texture, coarse-grained with a few cavities. Appear to be worm burrowing in various parts. The limestone ranges from porous to dense in different sections.
113'09"-114'05"	Shale	Red and soft. Drilled to 125' but the material was too soft to core.
END OF HOLE		
Lost Core:	18'06"	- 24'02"
	26'04"	- 34'
	36'10"	- 45'08"
	70'05"	- 71'05"
	88'05"	- 89'06"
	107'03"	- 110'
	111' -	112'09"

MONKS HEAD (HUNTLEY BROPHY PROPERTY)
ANTIGONISH COUNTY

Hole # 1

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
MH-1-1	1' 07"-5'	0.83	0.80	50.31	4.07
MH-1-2	5'-10'	0.83	0.78	37.40	15.85
MH-1-3	10'-15'	1.20	0.92	40.85	12.70
MH-1-4	15' 18' 06"	1.71	1.18	50.50	3.03
MH-1-5	24' 02"-35'	1.77	1.27	45.20	7.35
MH-1-6	35'-50'	2.30	1.42	34.20	16.80
MH-1-7	50'-55'	2.66	1.10	32.80	17.60
MH-1-8	55' 60'	2.09	1.40	33.42	17.15
MH-1-9	60' 65'	2.23	1.10	32.32	18.15
MH-1-10	65' 70'	2.30	0.95	31.91	18.95
MH-1-11	70' 75'	3.01	1.33	31.80	18.72
MH-1-12	75'-80'	2.38	1.40	31.70	18.31
MH-1-13	80'-85'	3.00	1.24	33.10	17.10
MH-1-14	85' 90'	2.92	1.14	32.44	17.45
MH-1-15	90'-95'	2.41	1.10	33.08	17.62
MH-1-16	95'-100'	1.90	0.87	32.80	17.60
MH-1-17	100' 105'	1.95	1.22	32.98	17.07
MH-1-18	105'-113' 09"	2.20	0.80	34.80	16.40
AVERAGE ASSAY		2.09	1.11	36.75	15.10

MONKS HEAD
(HUNTLEY BROPHY PROPERTY)
ANTIGONISH COUNTY

Hole # 2
Ultimate Depth: 35'
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION
0' - 35'	Overburden

END OF HOLE

MONKS HEAD
(HUNTLEY BROPHY PROPERTY)
ANTIGONISH COUNTY

Hole No. 3
Ultimate Depth: 145'
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET		FORMATION
0'-5'	Overburden	
5'50'09"	Limestone	Light brown, granular, medium-grained, dolomitic, Windsor limestone. Few cavities. Very low in silica.
50'09"-99'06"	Dolomite	Light brown, soft, very porous, fine-grained, Windsor dolomite. There are a few very thin calcite stringers. Highly siliceous. Galena was noted at 64'07".
99'06"-145'	Limestone	Light brown, hard, granular, coarse-grained, dolomitic, slightly fossiliferous, Windsor limestone. Very low in silica. Few very small brachiopods noted.
Hole ended in limestone, however, due to the number of cavities and the poor core recovery the hole was discontinued.		
END OF HOLE		
Lost Core:	6'11" - 9'04"	75' - 78'04"
	10' - 14'01"	80' - 89'04"
	16'09" - 23'02"	90' - 93'
	25' - 28'01"	95' - 99'06"
	30' - 35'	100' - 103'07"
	36'05" - 39'01"	105' - 113'
	41'04" - 47'06"	115' - 117'08"
	48' - 49'02"	121'03" - 122'07"
	55' - 63'08"	130' - 138'02"
	65' - 68'04"	140' - 143'11"

MONKS HEAD (HUNTLEY BROPHY PROPERTY)
ANTIGONISH COUNTY

Hole # 3

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
MH-3-1	5'16'09"	1.30	1.19	49.40	4.39
MH-3-2	23'02"-30'	1.28	1.29	47.20	6.21
MH-3-3	35'-41'04"	1.23	1.14	48.65	5.39
MH-3-4	49'06"55'	2.88	0.22	40.52	12.10
MH-3-5	63'09"-80'	9.48	1.96	28.10	17.92
MH-3-6	89'04"-105'	8.01	2.57	34.61	12.86
MH-3-7	113'-121'03"	1.19	0.91	48.25	5.59
MH-3-8	122'07"-126'	0.86	0.83	47.50	6.40
MH-3-9	126'130'	0.97	0.43	48.09	5.48
MH-3-10	128'02"-145'	1.01	0.68	48.45	5.60
AVERAGE ASSAY		2.82	1.12	44.08	8.19

POMQUET, ANTIGONISH COUNTY

Hole No. 1
Ultimate Depth: 35'
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION
0'-20'	Overburden.
20'35'	Siltstone. Red, hard, dips at an angle of 65° with the horizontal surface. This is underlying the dolomite and shale found in Hole #2.

END OF HOLE

POMQUET, ANTIGONISH COUNTY

Hole No. 2
 Ultimate Depth: 94'03"
 Proposed Depth: Arbitrary
 Dip: -45°
 Bearing: 33°

DEPTH FEET	FORMATION
0'-25'09"	Overburden.
25'09"-32'03"	Limestone. Hard, brownish grey, slightly porous, bituminous, argillaceous, siliceous, dolomitic, Windsor limestone. It contains numerous small blebs of soft, light grey clay. Also contains minor amounts of galena with a few small sections showing pyrite.
32'03"-88'08"	Dolomite. Ranges from light grey to yellowish brown in colour, hard, slightly porous, fine to medium-grained, Windsor dolomite. A small amount of galena is present. Limestone is more compact at the start and grades into a porous, yellowish brown dolomite. Bituminous material can be seen along fractures and along some bedding planes. The bedding is at a slight angle to the direction of the core. Special Note: 40'08" - 41'07" few brachiopods found 46'04" - 47'07" numerous cavities, most of which are partially filled with calcite. 52'08" evidences that some shearing has taken place. 69'06" - 72' dolomite shows yellow limonite staining and appears to be more coarse-grained with detrital material incorporated in it.
88'08"-93'	Limestone. Grey, hard, dense, medium-grained, oolitic, Windsor limestone.
93'-94'03"	Shale. Grey, soft, showing bedding at an angle of 20° to the angle of the holes.

END OF HOLE

POMQUET, ANTIGONISH COUNTY

Hole # 2

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
P-2-1	25' 09"-30'	6.90	3.19	35.40	12.68
P-2-2	30'-35'	8.34	3.69	45.25	3.83
P-2-3	35'-40'	2.46	2.38	34.80	15.10
P-2-4	40' 48' 05"	4.83	3.71	33.70	13.41
P-2-5	48' 05"-54'	11.63	4.98	27.68	17.45
P-2-6	55'-60'	2.31	2.05	30.55	19.35
P-2-7	60'-65'	7.78	4.62	28.30	16.40
P-2-8	65'-70'	2.91	2.77	30.45	18.50
P-2-9	70'-75'	1.79	3.50	31.10	13.30
P-2-10	75'-80'	2.22	2.64	31.60	18.35
P-2-11	80'-86' 05"	3.10	2.69	30.20	19.25
P-2-12	87' 09"-93'	1.94	2.65	48.35	4.64
AVERAGE ASSAY		4.70	3.24	33.98	14.79
	Lost Core:	36' 03"	-	37' 10"	
		42' 02"	-	45'	
		50' 09"	-	51' 04"	
		73' 08"	-	75'	
		82' 10"	-	85'	
		86' 05"	-	87' 09"	

WILLIAMS POINT (GILFOY PROPERTY)
ANTIGONISH COUNTY

Hole No. 1
Ultimate Depth: 100'
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION
0'-43'	Overburden. Reddish brown mud mixed with limestone boulders.
43'77'07"	Limestone. (Windsor Group) Ranges from light brown to dark grey, hard and dense. The fossils noted are gastropods (snails) and brachiopods. The brachiopod cavities are filled with calcite. There are numerous small shaly seams throughout. Part of the limestone is algal. The bedding and/or fracturing makes an angle of 60° with the core. Small fragments of granodiorite are found at 54'07" and are found in small quantities throughout the remainder of the hole. An algal section is found from 53'-59'09" (odd patterns of dark grey and light brown). Small blebs of galena are found in various places throughout the limestone.
77'07"-90'10"	Conglomerate. Small and large fragments of granodiorite in a calcarous groundmass.
90'10"-100'	Granodiorite.

END OF HOLE

Lost core: 45' - 48'
52'02" - 53'01"

WILLIAMS POINT (GILFOY PROPERTY)
ANTIGONISH COUNTY

Hole # 1

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
WP-1-1	43'-50'	4.00	1.51	52.40	0.71
WP-1-2	50'-55'	2.18	1.14	53.50	1.30
WP-1-3	55'-60'	2.76	1.10	52.35	0.69
WP-1-4	60'-65'	8.15	1.71	49.50	0.36
WP-1-5	65'-70'	2.52	1.03	52.80	0.82
WP-1-6	70'-75'	3.19	1.54	52.90	0.20
WP-1-7	75'-77' 07"	4.20	0.89	52.50	0.21

WILLIAMS POINT (GILFOY PROPERTY)
ANTIGONISH COUNTY

Hole No. 2
Ultimate Depth: 87'07
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION	
0'-46'10"	Overburden.	Red and grey mud with a few limestone boulders.
46'10'70"	Limestone.	(Windsor Group) This limestone ranges from light brown to dark grey in color, hard and dense and fossiliferous. There are numerous cavities throughout the limestone, some partially filled and some completely filled with calcite. The limestone contains fossils scattered sparsely throughout. The fossils noted are gastropods, pelecypods and brachiopods. Some of the shell cavities are filled with calcite. Galena is found in blebs throughout the limestone and conglomerate. Shaly sections are found from 51'07"-51'09", and from 58'07"-58'09". Some of the limestone appears to be algal.
70'-74'03"	Conglomerate.	Large red and grey fragments of granodiorite in a grey, calcarous matrix. These fragments fell from the granodiorite ridge when the limestone was forming.
74'03"-80'	Limestone.	Same as limestone above, except for a few granodiorite fragments found incorporated into the limestone.
80'-87'03"	Conglomerate.	Same as limestone above, except for a few granodiorite fragments found incorporated into the limestone.
87'03"-87'07"	Granodiorite.	

END OF HOLE

WILLIAMS POINT (GILFOY PROPERTY)
ANTIGONISH COUNTY

Hole # 2

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO (%)	MgO (%)
WP-2-1	46' 09"-50'	1.76	0.96	53.70	0.33
WP-2-2	50'-55'	3.18	1.58	52.01	0.43
WP-2-3	55'-60'	2.07	1.30	52.95	0.59
WP-2-4	60'-65'	1.29	1.99	53.45	0.92
WP-2-5	65'-70'	3.50	1.29	51.88	0.46
WP-2-6	74' 03"-80'	3.90	0.90	52.50	0.26

WILLIAMS POINT (KELL PROPERTY)
ANTIGONISH COUNTY

Hole No. 3
Ultimate Depth: 100'
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION
0'-66'11"	Overburden. Red and brown mud with a few limestone boulders.
66'11"-90'09"	Limestone. (Windsor Group) Dark grey to brown, hard, fine-grained. No fossils were noted. There are numerous small cavities filled and partially filled with calcite. There are a few small stylolites and a few thin, shaly seams. Galena can be seen throughout the limestone, however, it is not as plentiful as in Hole #2. Part of the limestone is algal. The limestone has small fragments incorporated in it at 90 feet. Shearing and fracturing is parallel with the vertical drill hole.
90'09"-100'	Conglomerate. Large and small fragments of granodiorite in a limestone matrix.
END OF HOLE	
Lost core:	
82'11"	- 84'
86'	- 89'08"

WILLIAMS POINT (KELL PROPERTY)
ANTIGONISH COUNTY

Hole # 3

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
WP-3-1	67'-70'	1.46	0.86	54.30	0.33
WP-3-2	70'-75'	3.75	0.92	52.00	0.71
WP-3-3	75'-80'	2.16	0.85	53.31	0.71
WP-3-4	80'-90'	1.05	0.86	54.31	0.42
AVERAGE ASSAY		2.11	0.87	53.48	0.54

WILLIAMS POINT (KELL PROPERTY)
ANTIGONISH COUNTY

Hole No. 4
Ultimate Depth: 34'03"
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION	
0'-1'07"	Overburden.	Limestone boulders.
1'07"-34'03"	Limestone.	(Windsor Group) Ranges from dark brown to grey, hard, dense and medium-grained. Contains numerous cavities. Only fossils noted are gastropods (snails). These are fairly numerous. The composition remains the same throughout the whole section. There are very few fragments of granodiorite. Very little galena can be found. The gastropods are most numerous at 34' where the hole was discontinued, still in limestone. At 34'03" a cavity was encountered and the core barrel dropped to 50' without any core recovery. No algal limestone was encountered.

END OF HOLE

Lost core:	2'01"	-	4'01"
	4'05"	-	5'
	10'	-	12'01"
	15'	-	17'

WILLIAMS POINT (KELL PROPERTY)
ANTIGONISH COUNTY

Hole # 4

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)
WP-4-1	1' 07"-10'	1.34	0.60	54.05	0.73
WP-4-2	10'-20'	0.83	0.48	54.20	0.35
WP-4-3	20'-25'	0.53	0.52	54.79	0.54
WP-4-4	25'-30'	0.67	0.52	55.20	0.45
WP-4-5	30'-34' 03"	0.88	0.41	54.50	0.30
AVERAGE ASSAY		0.85	0.51	54.55	0.47

WILLIAMS POINT (KELL PROPERTY)
ANTIGONISH COUNTY

Hole No. 5
Ultimate Depth: 37'01"
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION	
0'-10'	Overburden.	Limestone boulders.
10'-25'06"	Limestone.	(Windsor Group) Grey to brown, hard, dense and medium-grained. It contains numerous cavities. No fossils were noted. It contains small fragments of granodiorite from 4' to 25'06".
25'06"-35'	Granodiorite.	Red granodiorite with a few thin limestone sections. These are probably granodiorite boulders with thin sections of limestone between.
35'-37'01"	Conglomerate.	Large granodiorite fragments in a calcareous matrix.

END OF HOLE

Lost core: 16'04" - 20'
 20'03" - 23'07"
 27'01 - 27'11"

WILLIAMS POINT (KELL PROPERTY)
ANTIGONISH COUNTY

Hole # 5

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	Fe ₂ O ₃ (%)	CaO(%)	MgO(%)
WP-5-1	10'-15'	1.36	0.52	53.60	0.33
WP-5-2	15'-25' 06"	1.33	0.58	53.95	0.97
AVERAGE ASSAY		1.34	0.55	53.77	0.62

LIMEROCK, PICTOU COUNTY

Hole No. 1
 Ultimate Depth: 136'04"
 Proposed Depth: Arbitrary
 Dip: -90°

DEPTH FEET	FORMATION
0'-15'06"	Overburden. Red and grey clay.
15'06"-75'06"	Limestone. (Windsor Group) Dark grey, hard, dense, fine-grained, limestone. It is slightly fossiliferous, containing some brachiopods [<u>Productus</u> (<u>Linoproductus</u>) <u>lyelli</u>]. Some pelecypods (<u>Leptodesma acadica</u>) and some gastropods (<u>Murchisania gypsea</u>). Chalcopyrite and pyrite are disseminated throughout. The limestone is very argillaceous with a few thin shale layers. Contains carbonaceous material in seams throughout. This limestone belongs to Subzone B (deduced from the fossil content). <u>Special Notes:</u> Chalcopyrite at 34'01". Very few calcite veins or stringers. Chalcopyrite found as small stringers throughout. Fracture zone at 57' with some slickensiding (covered with carbonaceous material). Some type of nautiloid at 61'. Red clay at 65'02".
75'06"-86'01"	Limestone. Dark grey, hard, dense, medium-grained, Windsor limestone. The main feature distinguishing this from the above limestone is the presence of medium to small oncolites. The oncolites are spheroidal shape and can be found throughout this section. These are generally lighter color than the surrounding material and contain dark carbonaceous material surrounding these oncolites. Some also have a center composed of calcite. Some of the oncolites have been distorted and are elongated. The same fossils as above are found in this section but are not as abundant. Red clay is found at 80'09".

DEPTH FEET	FORMATION	
86'01"-101'07"	Limestone.	Dark grey, hard, medium-grained, argillaceous Windsor limestone. This section is characterized by the alternating thin bands of limestone and dark argillaceous material showing the bedding. These bands show the bedding to be dipping from 20° to 25°. There are numerous small, thin calcite stringers throughout, cutting across the bedding. Pyrite and chalcopryrite are abundantly disseminated and in thin stringers throughout. This section is also slightly fossiliferous. The limestone would not appear to be very pure. Has a thin 2" band of clay at 101'07". Contains a few small cavities containing calcite crystals.
101'07"-116'02"	Limestone.	Dark grey, hard, dense, medium-grained, Windsor limestone. It contains a great abundance of calcite throughout in the form of stringers, veins and cavity-filling, which is characteristic of this section. The calcite is pink and white. This limestone section is much purer than that found in the above section. Chalcopryrite and pyrite are still abundant. Styolites are abundant. No fossils were noted. There is a clay seam at 113'04".
116'02"-124'05"	Shale.	Light green, soft calcareous shale, containing some sandy sections. Yellow limonite staining from 122'10"-123'02". Contains small amounts of pyrite and chalcopryrite.
124'04"-126'03"	Sandstone.	Greenish brown, hard, fine-grained, quartzose sandstone.
126'03"-128'	Conglomerate	Mixture of maroon and green shale as clasts in a sandy matrix.
128'-131'03"	Sandstone.	Greenish grey, hard, fine-grained, with some parts containing a few shale clasts.
131'03"-132'	Conglomerate.	Mainly maroon shale clasts with a few green shaly clasts in a siliceous matrix.
132'-136'04"	Sandstone.	Greenish grey, hard, medium-grained, quartzose sandstone.
END OF HOLE		

LIMEROCK, PICTOU COUNTY

Hole # 1

Lost core:	116'07"	-	120'11"	(Sandy Material)
	125'	-	125'09"	

LIMEROCK, PICTOU COUNTY

Hole # 1

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)	L.O.I.(%)
LR-1-1	15' 06"-20'	47.60	16.10	15.30	2.89	16.05
LR-1-2	20'-25'	50.05	18.05	12.90	2.35	13.90
LR-1-3	25'-30'	47.75	18.10	14.70	2.85	15.85
LR-1-4	30' 35'	46.00	17.90	15.10	2.75	15.90
LR-1-5	35' 40'	45.20	17.20	16.60	2.40	16.30
LR-1-6	40'-45'	42.80	17.60	17.10	2.60	16.60
LR-1-7	45'-50'	35.40	16.30	22.45	2.17	20.30
LR-1-8	50' 55'	35.80	16.10	22.40	3.16	20.60
LR-1-9	55' 60'	36.50	14.40	24.30	1.87	22.05
LR-1-10	60' 65'	40.60	15.60	20.90	2.40	19.70
LR-1-11	65' 70'	34.30	12.60	26.45	1.94	22.65
LR-1-12	70'-75'	28.40	12.50	29.70	2.10	27.50
LR-1-13	75'-80'	18.30	10.10	35.30	3.36	32.30
LR-1-14	80' 85'	14.40	8.26	37.30	4.20	35.80
LR-1-15	85'-90'	26.30	11.20	28.50	4.35	28.60
LR-1-16	90'-95'	28.20	9.40	31.80	2.30	27.50
LR-1-17	95' 100'	18.20	7.68	36.20	3.60	33.30
LR-1-18	100'-105'	12.80	7.55	37.50	5.48	35.40
LR-1-19	105'-110'	3.56	3.18	50.70	0.51	39.10
LR-1-20	110' -	6.10	4.05	49.10	0.92	39.80
AVERAGE ASSAY		30.91	12.69	27.22	2.71	24.96

LIMEROCK, PICTOU COUNTY

Hole No. 2
Ultimate Depth: 54'
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION
0'-13'	Overburden, red clay and small boulders.
13'-54'	Shale. Red and grey, soft shale.

END OF HOLE

LIMEROCK, PICTOU COUNTY

Hole No. 3
 Ultimate Depth: 156'01"
 Proposed Depth: Arbitrary
 Dip:

DEPTH FEET	FORMATION	
0'-4'	Overburden.	Mud with small boulders.
4'-32'	Shale.	Soft shale with reddish, sandy bands.
32'-44'	Siltstone.	Red and grey, soft siltstone.
44'-59'	Sandstone.	Reddish grey, hard, medium-grained, quartzose sandstone. Contains bands of red shale throughout. No bedding is shown.
59'-62'05"	Siltstone.	Brecciated siltstone zone with some grey shale pebbles. This section shows galena disseminated throughout.
62'05"-70'11"	Sandstone.	Grey, hard, coarse-grained, quartzose sandstone. Shows no bedding and very little mineralization.
70'11"-77'07"	Shale.	Greenish grey, banded limestone and shale (alternating thin layers of limestone and shale). This banding shows a dip of approximately 50°. Very little mineralization present.
77'07"-97'09"	Argillite.	Greyish green, hard, compact, calcareous, slightly metamorphosed shale. Contains numerous veins of pink calcite, some up to 2" thick. Some of the veins run parallel to the bedding while others cut the bedding planes. Contains minor amounts of pyrite and chalcopyrite disseminated throughout.

DEPTH FEET		FORMATION
97'09"-118'11"	Limestone.	Dark grey, hard, dense, fine-grained, argillaceous limestone. Contains a few thin shale layers. Chalcopyrite mainly and some pyrite are disseminated throughout. Bedding is not too well displayed. Fossils are scarce with only a few gastropods being noted. Belongs to the B Subzone.
118'11"-122'10"	Limestone.	Dark grey, hard, dense, medium-grained, argillaceous Windsor limestone. The main characteristic of this section is the oncolites that are found there. These oncolites are mainly rounded but some have been distorted and are elongated. There is a large amount of carbonaceous material along the seams which show the bedding. Contains chalcopyrite and pyrite disseminated throughout. Contains a few small calcite stringers.
122'10"-129'02"	Limestone.	Dark grey, hard, argillaceous, medium-grained, Windsor limestone. This section is characterized by alternating bands of thin carbonaceous material and limestone. Contains disseminated chalcopyrite and pyrite throughout. Also contains some thin veins of white calcite.
129'02"-140'	Limestone.	Dark grey, hard, dense, medium-grained, Windsor limestone. Characterized by numerous stringers and veins of calcite along with some calcite-filling of the cavities. Appears to contain disseminated chalcopyrite and pyrite. No fossils were noted. Veins of calcite are very irregular and cut, as well as parallel, the bedding of the limestone.
140'-145'04"	Siltstone.	Grey, soft, calcareous siltstone.
145'04"-156'01"	Gypsum.	Greyish white, soft gypsum. Contains some thick and thin bands of greenish grey shale throughout.
END OF HOLE		
Lost Core:		142' - 145.

LIMEROCK, PICTOU COUNTY

Hole # 3

SAMPLE NO.	WIDTH OF SAMPLE	SiO ₂ (%)	R ₂ O ₃ (%)	CaO(%)	MgO(%)	L.O.I.(%)
LR-3-1	79' 4"-87' 6"	58.80	13.60	10.90	1.90	13.10
LR-3-2	87' 6"-97' 10"	44.10	17.60	15.70	3.12	17.10
LR-3-3	97' 10"-100'	44.50	17.10	16.30	3.28	16.40
LR-3-4	100'-105'	38.30	17.40	14.65	2.78	21.45
LR-3-5	105'-110'	34.50	15.50	24.40	1.80	20.10
LR-3-6	110'-115'	22.90	10.70	33.00	2.80	29.70
LR-3-7	115'-120'	23.90	11.80	32.60	2.12	28.40
LR-3-8	120'-125'	23.80	10.80	29.20	5.22	29.99
LR-3-9	125'-130'	25.99	7.98	33.50	1.48	29.85
LR-3-10	130'-135'	7.75	4.65	48.40	1.48	37.80
LR-3-11	135'-140'	13.15	6.23	43.10	1.20	33.80
AVERAGE ASSAY		30.70	12.12	27.43	2.47	25.25

LIMEROCK, PICTOU COUNTY

Hole No. 4
Ultimate Depth: 67'07"
Proposed Depth: Arbitrary
Dip: -90°

DEPTH FEET	FORMATION	
0'-38'	Overburden.	Red and grey clay.
38'-67'07"	Sandstone.	Grey, crumbly, medium-grained orthoquartzite, contains minor amount of biotite. Consists of approximately 90% quartz. Limonite staining found in minor amounts.
END OF HOLE		

A P P E N D I X B

Sampling Code and Location of Surface Samples
Antigonish CountyAfton (Antigonish, 11F/12 East)

Af-1-1	45° 35' 11"
	61° 42' 49"

Antigonish (Antigonish, 11F/12 West)

An-1-1	45° 38' 04"
	61° 59' 30"

An-2-1	45° 38' 54"
	61° 59' 31"

Antigonish Harbour (Antigonish, 11F/12 West)

AH-1-1	45° 43' 48"
	61° 53' 41"

AH-2-1	45° 42' 13"
	61° 53' 34"

Ashdale (Merigomish, 11E/9 East)

Ad-1-1	45° 30' 14"
	62° 00' 31"

Ad-2-1	45° 32' 16"
	62° 00' 32"

Auld Cove (Port Hawkesbury, 11F/11)

AC-1-1	45° 40' 58"
	61° 27' 16"

Big Marsh (Merigomish, 11E/9 East)

BM-1-1	45° 43' 39"
	62° 01' 06"

BM-2-1	45° 44' 14"
	62° 00' 22"

BM-2-2	45° 44' 18"
	62° 00' 30"

College Grant (Lochaber, 11E/8 East)

CG-1-1	45° 24' 07"
	62° 03' 36"

James River (Merigomish, 11E/9 East)

JR-1-1	45° 32' 50"
	62° 07' 34"

JR-2-1	45° 34' 38"
	62° 07' 17"

Linwood (Antigonish, 11F/12 East)

Lw-1-1	45° 40' 08"
	61° 35' 29"

Lower South River (Antigonish, 11F/12 West)

LSR-1-1	45° 35' 38"
	61° 56' 09"

LSR-1-2	45° 35' 41"
	61° 56' 01"

McArras Brook (Merigomish, 11E/9 East)

MB-1-1	45° 43' 28"
	62° 13' 34"

Meadow Green (Antigonish, 11F/12 West)

MG-1-1	45° 33' 09"
	61° 48' 47"

Monastery (Antigonish, 11F/12 East)

Mo-2-1	45° 35' 46"
	61° 38' 48"

Monks Head (Antigonish, 11F/12 West)

MH-1-1	45° 40' 16"
	61° 51' 18"

MH-1-2	45° 40' 07"
	61° 51' 24"

Ohio River (Lochaber, 11E/8 East and Merigomish, 11E/9 East)

OH-1-1	45° 30' 37"
	62° 03' 58"
OH-2-1	45° 28' 12"
	62° 03' 27"
OH-3-1	45° 27' 58"
	62° 03' 28"
OH-3-2	45° 27' 54"
	62° 03' 29"
OH-4-1	45° 27' 42"
	62° 03' 20"
OH-5	45° 27' 23"
	62° 03' 34"
OH-6-1	45° 27' 14"
	62° 04' 00"
OH-7-1	45° 32' 08"
	62° 05' 40"
OH-8-1	45° 30' 43"
	62° 04' 50"
OH-9-1	45° 30' 17"
	62° 03' 46"
OH-11-1	45° 27' 58"
	62° 04' 48"

Pomquet River (Antigonish, 11F/12 West)

PR-1-1	45° 33' 21"
	61° 50' 28"
PR-1-2	45° 33' 28"
	61° 50' 31"

South River Station (Antigonish, 11F/12 West)

SR-1-1	45° 36' 38"
	61° 54' 28"
SR-2-1	45° 37' 03"
	61° 54' 16"

Southside Antigonish Harbour (Antigonish, 11F/12 West)

SAH-1-1	45° 39' 40"
	61° 53' 27"
SAH-2-1	45° 39' 27"
	61° 54' 12"
SAH-3-1	45° 38' 26"
	61° 52' 04"
SAH-4-1	45° 38' 12"
	61° 51' 51"

West River (Antigonish, 11F/12 West)

WR-1-1	45° 36' 01"
	61° 59' 23"
WR-2-1	45° 36' 09"
	61° 58' 49"

Williams Point (Antigonish, 11F/12 West)

WP-1-1	45° 37' 43"
	61° 56' 02"
WP-2-1	45° 37' 28"
	61° 56' 28"

Guysborough CountyMulgrave (Port Hawkesbury, 11F/11 West)

Mg-1-1	45° 34' 00"
	61° 21' 23"

Pictou CountyBailey Brook (Merigomish, 11E/9 West)

BB-1-1 45° 39' 43"
 62° 15' 25"

BB-2-1 45° 39' 45"
 62° 15' 45"

Bridgeville (Hopewell, 11E/7 East)

Bv-1-1 45° 26' 08"
 62° 35' 57"

Bv-2-1 45° 25' 29"
 62° 37' 58"

Bv-2-2 45° 25' 28"
 62° 37' 36"

Churchville (New Glasgow, 11E/10 East)

Ch-1-1 45° 30' 53"
 62° 39' 00"

Ch-2-1 45° 30' 41"
 62° 39' 15"

Limerock (New Glasgow, 11E/10 West)

LR-1-1 & 1-2 45° 32' 49"
 62° 51' 10"

LR-2-1 45° 33' 00"
 62° 50' 52"

Lorne (Hopewell, 11E/7 East)

Lo-1-1 45° 25' 38"
 62° 41' 30"

Lo-2-1 45° 25' 38"
 62° 40' 46"

Lo-3-1 & 3-2 45° 26' 33"
 62° 42' 20"

McArras Brook (Merigomish, 11E/9 East)

MB-2-1	45° 42' 22"
	62° 14' 04"

McLellan Brook (New Glasgow, 11E/10 East)

ML-2-1	45° 31' 10"
	62° 36' 45"

ML-3-1	45° 30' 49"
	62° 37' 09"

Springville (Hopewell, 11E/7 East)

Sv-1-1	45° 27' 33"
	62° 37' 09"

Sv-1-2	45° 27' 11"
	62° 37' 09"

Sv-1-3	45° 27' 23"
	62° 37' 16"

Sv-2-1	45° 28' 12"
	62° 37' 47"

Sv-3-1	45° 27' 37"
	62° 36' 46"

Sunnybrae (Hopewell, 11E/7 East)

Sb-1-1	45° 24' 40"
	62° 32' 18"

Sb-1-2 & 1-3	45° 24' 32"
	62° 32' 13"

Sb-2-1	45° 24' 08"
	62° 30' 02"

Cumberland CountyAmherst (Amherst, 21H/16 East)

Am-1-1	45° 46' 51"
	64° 10' 23"
Am-1-2	45° 47' 06"
	64° 09' 22"
Am-2-1	45° 45' 51"
	64° 12' 05"
Am-3-1	45° 47' 15"
	64° 08' 49"
Am-4-1	45° 46' 23"
	64° 10' 04"
Am-5-1	45° 46' 21"
	64° 09' 51"

Big Lake (Oxford, 11E/12 East)

BL-1-1	45° 43' 38"
	63° 44' 17"

Lower Maccan (Amherst, 21H/16 West)

LM-1-1	45° 45' 56"
	65° 17' 43"

Minudie (Amherst, 21H/16 West)

Md-1-1	45° 46' 00"
	64° 20' 26"

Parrsboro (Parrsboro, 21H/8 West)

Po-1-1	45° 22' 43"
	64° 15' 43"
Po-2-1	45° 22' 26"
	64° 20' 33"
Po-3-1	45° 22' 30"
	64° 20' 42"

Po-4-1	45° 24' 52"
	64° 22' 35"

Pugwash (Pugwash, 11E/13 East)

Pw-1-1	45° 49' 52"
	63° 41' 20"

Roslin (Pugwash, 11E/13 West)

Ro-1-1	45° 46' 39"
	63° 45' 45"

Ro-2-1	45° 46' 45"
	63° 46' 19"

Wallace (Malagash, 11E/14 West)

Wa-1-1	45° 46' 05"
	63° 30' 00"

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